A STUDY ON
AZHAL KEEL VAYU
(Osteoarthritis)

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Documents Filed	(1)Protocol (2)Data Collection Forms (3)Patient Information Sheet (4)Consent Form (5)SAE (Pharmacovigilance)
Clinical/Non Clinical Trial Protocol (Others-Specify)	Clinical Trial Protocol
Informed Consent Document	Yes
Any other Document	Case Sheet/Investigation Documents
Date of IEC Approval & its Number	29.05.2017 , GSMC-IV IEC/2017/Br-III/19/29.05.2017

We approve the trial to be conducted in its presented form.

The Institutional Ethical Committee expects to be informed about the process report to be submitted to the IEC at least annually of the study, any SAE occurring in the course of the study, any changes in the protocol and submission of final report.

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CERTIFICATE OF BOTANICAL AUTHENTICITY

Certified the following plant drugs used in Siddha Formulation **ERANDA MOOLA CHOORANAM (INTERNAL) & KUNGILIA THYLAM (EXTERNAL)** for management of AZHAL KEEL VAYU(OSTEO ARTHRITIS) taken up for post-graduation dissertation studies by **Dr.P.PANDISELVI (REG.NO:321613009)** PG scholar, Department of Sirappu Maruthuvam are correctly identified and authenticated through Visual inspection / Organoleptic characters / Experience, Education & Training morphology, microscopical and taxonomical methods.

INGREDIENTS OF ERANDA MOOLA CHOORANAM

S.NO	DRUGS	BOTANICAL NAME	FAMILY	PARTS USED
1	Aamanakku	*Ricinus communis*	Euphorbiaceae	Root

INGREDIENTS OF KUNGILIA THYLAM

S.NO	DRUGS	BOTANICAL NAME	FAMILY	PARTS USED
1	Poonai kann kungiliam	*Pistacia lentiscus*	Anacardiaceae	Resin

Station:Palayamkottai

Date: 23.4.18

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1. INTRODUCTION

Siddha system is one of the unique systems of Indian medicine. Sridhar's are believed to be the founders of siddha medicine.They are used the herbs, metals, minerals. It's used for better health and helps to live the mankind for more than thousands of years.

Siddha medicine is a precious less medicine in the world and considered by many to be the mother of all medicine Significantly one the definition off the siddha medicine is invasion of death 'that which ensures preventive against mortality''- Thirumoolar The concept of siddha system is based on fundamental principles of five basic elements of the universe 98- thathuvams, three humours, and seven thathus (physical constituents of the body) The three humors namely vat ham ,pitham,and kabam exists in their appropriate ratio When the harmony of the above said humours gets deranged owing to a relative increased(or)decreased of any one or more of the principle humours, disease is caused the alteration in the normal ratio produced disease.the sign and symptoms are produced according to the particular deranged kuttrams.

Siddha system of medicine is to give healthiness to an individual siddha system is differ from the other system medicine by giving absoulute physical ,mental,and social well being of an individual by its various tools like medicine, meditation, yoga, varma,massage,and its unique social and preventive medicine which is quoted by 'Theraiyar pini anuga vithi'

"Health is a state of complete physical, mental and social well being and not merely an absence of disease" is the widely accepted definition of health give by **WHO**(World health organization)

Thirumoolar quotes that

"மறுப்பது உடல்நோய் மருந்தெனலாகும்
மறுப்பது உளநொய் மருந்தெனச்சாலும்
மறுப்பது இனிநோய் வாராதிருக்க
மறுப்பது சாவையும் மருந்தெனலாமே"

It can be thus summarized that the siddha system is largely focused on promotive and preventive health.

According the siddha system of medicine knee pain is the major symptom of keel vayu. The word **keel** means the **hinge joint** and the word **vaayu** means the **vali or vatham.**

The increased vali or vatham affects the joint producing knee pain.**Azhal keel vaayu** comes under the 10 classification of keel vaayu. Azhal keel vaayu is characterized by symptoms like joint pain,swelling,tenderness,stiffness and restricted movemend with a characteristic sound and therefore it can be compared with Osteoarthritis.

Osteoarthritis:

Osteoarthritis is a chronic degenerative disorder of multi factorial etiology characterized by loss of articular cartilage,hypertrophy of bone at the margins, subchondral sclerosis,and range of biochemical and morphological alterations of the synovial membrane and joint capsule. Typical clinical symtoms are pain ,particularly after prolonged activity and weight bearing; whereas stiffness is experienced after inactivity. Classified as: Idiopathic (localized or generalized) or secondary (traumatic, congenital, medabolic, endocrine, neuropathic and other medical causes) characterized by focal and progressive loss of hyaline cartilage of joints, underlying bony changes. Symptoms are pain, swelling, and stiffness.

It is second most common rheumatological problem and it's the most frequent joint disease with prevalence of 22%to39%in India. Hence the author is interested to try effective remedy to this patient as said in siddha literature with the application of basic principles of siddha and also supporting by siddha and modern diagnostic parameters.

The medicine chosen of this disease are;

ERANDAMOOLA CHOORANAM- INTERNAL

(Ref-Anuboga vaithiya theva ragasiyam)

KUNGILIA THYLAM- EXTERNAL

(Ref-Marunthu sei eyalum kalaium)

The above medicine contain ingredients which have anti vatha property.considering this they are chosen as trial medicine in this study.Pattru is one of the best external therapies in siddha system of medicine and the effectiveness of pattru in reduced pain in azhal keel vaayu is also evaluated along with trial medicines

2. AIM AND OBJECTIVE

AIM:

Phase II clinical observation criteria based study of Azhal keel vayu (OSTEO ARTHERITIS) and the drug choice **ERANDA MOOLA CHOORANAM** (internal) and External KUNGILIA THYLAM and External therapy PATTRU

OBJECTIVE:

PRIMARY OBJECTIVE:

To evaluate the clinical efficacy of **"ERANDA MOOLA CHOORANAM" (INT.) and** "KUNGILIA THYLAM**" (EXT.)** PATTRU [EXTERNALTHERAPY] in the treatment of **"AZHAL KEEL VAYU" (OSTEO ARTHRITIS)** for the reduction of pain and swelling and to improve the range of movements.

SECONDARY OBJECTIVE:

- To evaluate reduction in restriction of movements.
- To evaluate effect of varmam and asanam along with trial medicines.
- To study the siddha principles neerkuri and neikuri before and after treatment.

3.REVIEW OF LITERATURE

SIDDHA ASPECT

The concept of siddha system are based on fundamental principles of five basic elements of the universe,96- thathuvam ,humours, and seven thathus (physical constituents of the body)

Vatham, pitham ,kabam, are called as three humours of the humen system.In normal person these three humours always exit in their appropriate ratio.when the harmony of the above said humours gets deranged owing to a relative increased or decreased of any one or more of the principal humours ,disease is caused.

As illustrated in **Indian Materia Medica Vol II,** The theory of vatham, pitham, kabam begins where modern physiology ends.

The theory of vatham, pitham, kabam was great discovery,which is unfortunately misunderstood by western scholars judging by the wrong mercenary translation rendring these are wind,bile,and phlegm.

It must be remembered that the theory of vatham,pitham, and kabam not only mean the old exploded humoral theory.

Tha ***vatham*** not only simply imply "Wind" but also comprehends all the phenomena which comes under the functions of the ***Central and sympathetic nervous systems*** and the function of vatham is controlled by central nervous system as quoted in the udal thathukkal text book by Prof.Dr.P.M.Venugopal, H.P.I.M.,

Like that,the term ***'Pitham'*** not only mean 'Bile'but signifies the function of ***thermogenesis*** **(or)** heat production and ***metabolism*****,** comprehending in its scop the ***process of digestion, coloration of blood*** and formation of various ***secretion and excretion*** which are either the means or end of ***tissue combustion*** and all theas function are controlled by ***Autonomus nerve system.***

The '***kabham'*** not only means 'phlegm' but it is used primarily to imply the function of ***thermotaxis (or) heat regulations*** and secondarily formation of the various ***preservative fluids (e.g) mucus, synovial,*** and its functions are maintained by the cell

ஐம்பூதம் தேகத்திற்கு உள்ள ஒற்றுமையாவன

"அண்டத்தில் உள்ளதே பிண்டம்
பிண்டத்தில் உள்ளதே அண்டம்
அண்டமும் பிண்டமும் ஒன்றே
அறிந்துதான் பார்க்கும் போதே" - சட்டமுனி

பிரபஞ்சம் ஐம்பூதமயமானது. தோன்றி, நிலைத்து, அழிந்து அப்பால் மறுபடியும் தோன்றி நிலைத்து அழிந்து போகும் பொருட்கள் யாவும் ஓரிடத்தில் ஒடுங்கும். இதுவே பரப்பிரம்மம் என்பர். தோன்றும்போதும் அவ்விடத்திலிருந்தே படைத்தல், காத்தல், அழித்தல் என்னும் சக்திகளுக்கிணங்க நிகழும் இவ்வுலகம் ஐம்பூதமயமானது என்பர். தேகமும் ஐம்பூதக் கொள்கைக்கு விலக்கில்லை.

"நிலம் நீர்தீவளி விசும்போடைந்தும்
கலந்தமயக் கமுலகம் இது"

- நோய்நாடல் நோய்முதல்நாடல் பகுதி

1. Earth (நிலம்)

- Gives shape to the body and release its energy.
- Bones, muscles and tissues represent it in the body.

2. Water (நீர்)

- Makes the earth supple and helps in the transmission of energy, serum, lymph, saliva etc.
- Represent it in the body.

3. Fire (தீ)

- Steadies the form of the body and gives vigour and stimulation
- Digestion and circulation represent it in the body.

4. Air (வளி)

- Ignites the fire and works as a life carrier and its he support of all contact and exchange
- Respiration and nervous system represent in the body.

5. Ether (விசம்பு)

- Ether is the creater of life itself in the body.
- A harmonious, cambination and function of these five elements in the body produce a healthy and beautiful life.
- Man has gross physical body and subtle physical body is immediately behind the gross physical body and is closely connected with it.

  Vatham = Air + Ether

  In kumba vatham both air and ether are affected
- The life-force which is different from material energy derived from food, pervades the gross physical through the subtle physical.

ஐம்பூதங்கட்கும், அறுசுவைகளுக்கு முள்ள ஒற்றுமையாவன:

"மண்ணுடனே புனல் தீக்கால்
முறையாகச் சேர்ந்திட்டால் வருமே இனிப்பு
திண்ணமிலம் துவர்ப்பிரசம்
சதாகதியோ டார்தீவின் திடமா முறைப்பும்
எண்ணரிய கசப்பு முண்டாற்
தண்ணீரில் கனவிணைப்பா லெழுமா முவர்ப்பு
உண்ணரிய அறுசுவையின்
பிறப்பிதெனும் குருசித்தருரைத்த மறையே"

- *தோற்றக்கிரம ஆராய்ச்சியும், சித்தமருத்துவ வரலாறும்.*

Siddhars are most spiritual scientist in the world he explored.

The food we have take six types of taste.

1. Sweet (இனிப்பு)
2. Sour (புளிப்பு)
3. Salt (உப்பு)
4. Bitter (கைப்பு)
5. Pungent (கார்ப்பு)
6. Astringent (துவர்ப்பு)

Each of it mixture of 2 basic materials,

இனிப்பு	-	மண்	+	நீர்
புளிப்பு	-	மண்	+	தீ
உப்பு	-	நீர்	+	தீ
கைப்பு	-	காற்று	+	ஆகாயம்
கார்ப்பு	-	தீ	+	ஆகாயம்
துவர்ப்பு	-	மண்	+	ஆகாயம்

This six tastes are divided by the thiridhosam (vatham, pitham, kabam) Which are the pillar for support our body structure.

வாயு	-	வாதம்
தேயு	-	பித்தம்
அப்பு	-	கபம்

These are the alteration method in the level of Thiridhosha. It may affects the normal function of the body.

மிகினும் குறையினும் நோய் செய்யும் நூலோர்
வளிமுதலா வெண்ணிய மூன்று

- திருக்குறள்

The normal value of thiridhosa vadham, pitham, kabam – 1: ½ : ¼

வழங்கிய வாதம் மாத்திரை யொன்றாகில்
தழங்கிய பித்தந் தன்னிலை வாசி
அழங்குங் கபந்தானடங்கியே காலோடில்
பிசங்கிய சீவர்க்குப் பிசகொன்றுமில்லையே

- குணவாகடம்

Synonyms of the literature, Three dhosas due to irregular diet & behavior. In the keel vatham disease, the chief deranged factor among the Thirithathu is the vatham.

உணவு செயல் ஆகியவற்றின் மாறுபாடுகளால், ஐம்பூதமயமான ஏழு உடல்தாதுக்களால் ஆன உடலிற்கு வளி, அழல், ஐயம் என்ற மூன்று உயிர் தாதுக்கள் மிகுந்தோ குறைந்தோ நோய் ஏற்படின் ஐம்பூத அடிப்படையில் உண்டான அறுசுவைகளான மருந்து பொருட்களை கொண்டு பரிகரிக்க வேண்டும்.

Thannilai valarchi

(Accumulation and excitation)

- The stage where the humour accumulate in a particular part as stagnant is called Thannilai valarchi.
- When the stagnant humour accumulated and permeated a structure there is an excitement from eversion towards similar and attraction towards contraries. This is known as “Prakobam”.

Piranilai Valarchi (Spreading)

This is the stage where the excited humour extends by viyana to another part. the derangement of kutram becomes located in parts of the body. And being to cause disease of joints, blood, stomach, bladder and soon.

I. Vatham

The term vatha denotes

- Vayu
- Dryness
- Pain
- Flatulence and
- Lightness

Location of vatham

Vatham is located in the hip, below the adbomen, moolatharam and sexual organs. It is also said that vatha is settled in various places including bone, joints, nerves, vessels, hair follicles, muscles, sperm, urine and stools.

Funtion of vatham

The function of vatha one respiration stimulate the body and soul, voiding of excreta refreshness and proper harmony of the seven thathu.

Effects of vitiated vatha

Vayu pain, exquisite pain, extreme dryness, palpitation, dislocation of the joints, dysfunction of the sexual organs, constipation, dysuria, thirst, pain in the long bone. Unable to flexion and extension of the limbs, dark complexion and emaciation are the main ill effects of the vitiated vatha.

II. Pitham

The term pitham denotes gastric juice, bile, energy, heat and anger etc.

Location of pitha

Head, heart, bladder, abdomen, umbilicus, stomach, saliva, sweat, blood, eyes and skin are the sites of pitham.

Effects of vitiated pitham

Excessive heat in the body, improper digestion, excessive sweat, giddiness, syncope and immortal behaviours are some of the ill effects of vitiated.

III.Kabam

Location of kabam

The kabam is located in the tongue, chest, blood, bone marrow, bones, nerves, brain, large intestine, eyes and joints.

Functions of kabam

The important functions of kabam are maintaining the unctuous and viscosity and proper functioning of the joints.

Effects of vitiated kabam

Pain in the long bones, dysfunction of the joints, improper digestion, excessive sleep and inhibition of understanding capacity.

கீல் வாயு:

According to ***sabapathy manuscript*** Azhal keel vayu comes under the classification of ten keel vayus.In keel vayu the mostly deranged factor is vatham. So keel vayu comes under the vatha disease according to thiridosha theory It is also confirmed by ***Agasthiyar Gunavagadam.***

"தானாக கீல்வாத ரோகம் பேரை
நோய் தனக்கு பாகியாய் வாதரோக மென்பர்
நுட்பமுள்ள வாதரோக மெண்பதுந் தான்
ஆய்ந்தெடுத்து இதற்குள்ளே அடக்கம் பாரு.
- அகத்தியர் குணவாகடம்

தேரையர் காப்பியத்தில் வாதம் 81 வகையில் கீல்வாதம் தொகுக்கப்பட்டுள்ளது. யூகி வைத்திய சிந்தாமணியில் வாதம் 80 வகையாகவும்,

TV சாம்பசிவம்பிள்ளை நூலில் கீல்வாயு causes "Painful inflammation with swelling affecting the muscle & joints of the human body.

வேறுபெயர்கள்

- சந்துவலி,
- மூட்டுவலி,
- மேகசூலை,
- முடக்குவாயு,
- ஆமவாதம்,
- சந்துவாதம்,
- சூலைக்கட்டு,
- சந்திக சிலேத்தும ரோகம்,
- வாதசூலை,
- வாயுரோகம்

காரண பெயர்கள்

நோய்காரணம்	-	மேகசூலை
முக்குற்ற நிலை மாறுபாடு	-	வாதசூலை, சந்திக சிலேத்துமரோகம், சந்துவாதம்
இடத்தைக் கொண்டு	-	மூட்டுவலி, சந்துவலி
குறிகுணங்களை கொண்டு	-	சூலை கட்டு, முடக்கு வாதம்

சந்துவாதம்:

"முட்டதுகடுகடுத்து குறித்துடமனகறிநாப்போல்
கட்டுறநடக்கொண்ணாது கவிழ்ந்தாப்போலு
மிட்டவேவெறுதீதுநோவா யிதின்குடங்கண்ட்தாகில்
தொட்டுறமுடங்வாத குணமெனச்சொல்லலாமே"

-யூகிமுனி வைத்திய காவியம் 1000

முடக்குவாதம்:

"சந்தைப்பற்றிவிடாமல்நின்று சாய்நேரத்தில் விடாமல்னநின்று
நொந்தப்படியேதான்வற்றி நோக்கங்கெட்டுதுளதாக்கு
மிந்தபடயேயிடறுபண்ணு மிதுவுருமைமாறாது
வந்தபடியோசக்கிநிற்கில் வருந்துஞ்சந்துவாதமிதே"

-யூகிமுனி வைத்திய காவியம் 1000

Description of the nomenclature

Azhal keel vayu = Azhal + keel + Vayu

Azhal - Pitham

Keel - Joint

Vayu - Vatham

Initially the joint is affected by the vitiated vatham. Pitham, and kabam, accompany later. It is a disease which is common in pitha kalam (middle 1/3 of the lifespan).

நோய் இயல்

இதனை சபாபதி கையேட்டில்,

"வளியுமைந் தன்னிலை கெட்டு
வலியுடன் வீக்கச் சுரமும் காய்ந்து
மூட்டுக்கள் தோறும் முடுக்கியே நொற்று
மூட்டுக்கள் தன்னில் நீரும் சுரந்து
தாங்கொணா வலியுமா நொந்திடுமம்மே"

கீல்வாயு நோயானது வலி, வீக்கம், குத்தல், மூட்டுகளை அசைக்க சிரமம், விறைப்புத்தன்மை, சில நேரங்களில் அல்லது சில நோய் நிலைகளில் சுரம், பசியின்மை, சோகை ஆகிய குறிகுணங்களை உடையதாகும்.

Noi Enn (Classification)

Keel vayu is classified into 10 types according to siddha maruthuvam textbook.

- Vali Keel vayu
- Azhal Keel vayu
- Iya Keel vayu
- Vali azhal Keel vayu
- Vali iya Keel vayu
- Azhal vali Keel vayu
- Azhal iya Keel vayu
- Iya vali Keel vayu
- Iya azhal Keel vayu
- Mukkutra Keel vayu

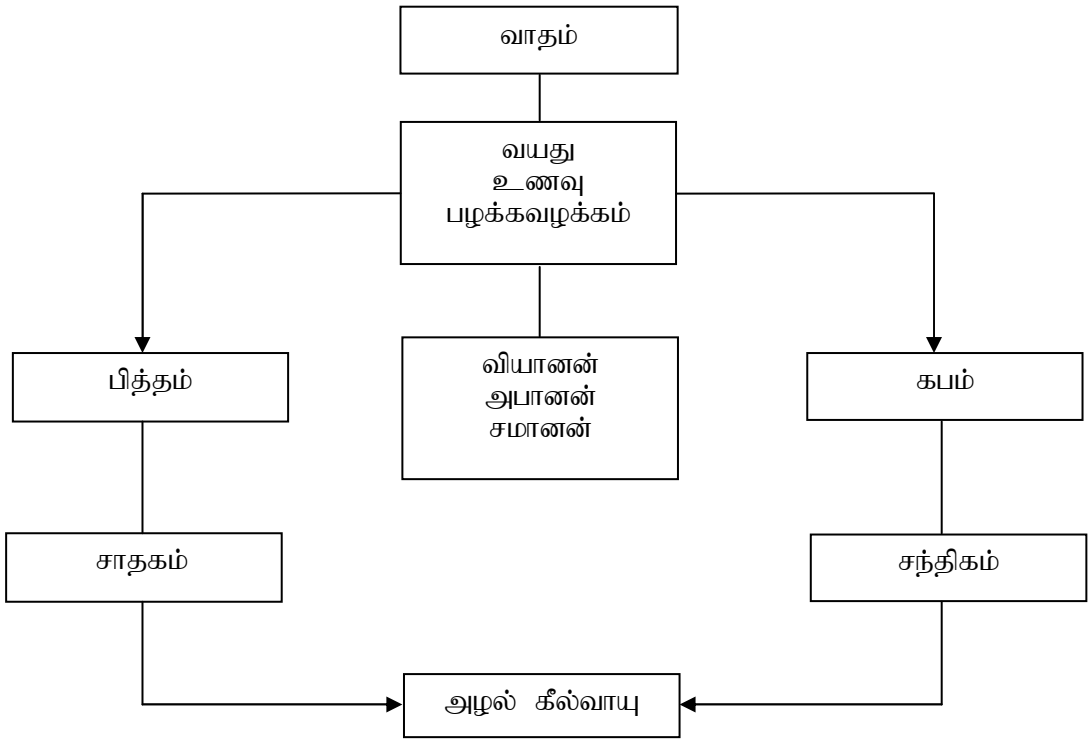
In theraiyar vagadam among the 81 vatha diseases following are joint diseases.

- Sooriya vatham
- Seetha vatham
- Mozhi vatham
- Kuthi vatham
- Santhu vatham
- Vasi vatham
- Kendai vatham
- Sathi vatham
- Thombai vatham
- Kotai vatham

In the text Athma rakshamirtham, the following are described as joint diseases

- Muzhanthai vatham
- Mudakku vatham
- Kendaikal vatham
- Santhu vatham
- Thoal vatham
- Muzhi vatham

நோய்வரும் வழி



உணவு மற்றும் காலமாறுபாடுகளாலும் பழக்கவழக்கங்களாலும் கலவியால் பிறந்த மேக நோய்க்கு துணையாகவும் தாய் தந்தையர் வழியாகவும் சுற்றுபுறச்சூழ்நிலைகளாலும் முக்குற்றங்களில் வேறுபாடு உண்டாகி நோயை ஏற்படுத்தும்.

சுவை:

புளிதுவர் விஞ்சுங்கறி யாற்பூரிக் கும்வாம்
ஒளியுவர்கைப் பேறில் பித்துச் சீறும் - கிளிமொழியே
கார்ப்பிணிப்பு விஞ்சிற் கபம்விஞ்சு சட்டிரதச்
சேரப் புணர் நோயணுகாதே.

என்பதினால் புளிப்பு, துவர்ப்பு அதிகமுள்ள உணவுகளால் வாதம் மிகுதிப்படும்.

உணவு:

"வளிதரு காய்கிழங்கு வரைவிலா தயிலல் கோழை
முளிதயிர் போன்மிகுக்கு முறையிலா வுண்டி கோடல்
குளிர்தரு வளியிற் றேகங் குனிப்புற வுலவல் பெண்டிர்
குளிதரு மயக்கம் பெற்றோர் கடிசெயல் கருவியாமால்".

- சபாபதி கையேடு

"தொழில்பெறு கைப்புக் கார்த்தல், துவர்த்தல் விஞ்சுகினுஞ் சோறும்
பழையதாம் வரகு மற்றைப் பைந்தினை யருந்தினாலும்
எழில் பெறப் பகலுறங்கி இரவினிலுறங்களத்தாலும்
மழை நிகர் குழலினாலே வாதங்கோ பிக்குங்காணே"

- பரராச சேகரம்

கைப்பு, துவர்ப்பு, கார்ப்பு, பதார்த்தங்களை மிகுதியாக உண்ணல், பழைய சோறு, வரகு, திணை உண்ணல், பகலில் உறங்கி இரவில் விழித்திருத்தல் ஆகிய காரணங்களினால் வாதம் மிகுதிப்படும்.

அகக் காரணம்:

கோள்களுக்கும் பிணிகளுக்கும் உள்ள ஒப்புமை:

"கூறுமொன்று மூன்றுடன் குலவு நாலைந் தேழிலும்
குற்றமாம் நலத்தினும் கொரம் பன்னிரண்டிலும்
சேரவே புதன்தாறுமோ சீரியமேனை நின்றிடில்
செப்பொணாத தீமையோடு செய்யும் பச்சந்தாறும்
நெடுந்துக்க மிக்கவாம் நடக்கற்தாது தொழில்தாம்
நித்தையாகு கீல்பிடிப்பு நீடு மெய்யில் தோன்றுமாம்
ரியங்கள் சேதமாய் கால்வயது குறையுமாம்
கண்டுணர்ந்து கணித வல்லோன் கருத்துடன் செப்பினரே.

- மணிமந்திர வைத்தியரோகம்

கிரகாதிகள் மக்களின் சென்மாந்திர நல்வினை தீவினைக்கேற்ப அமையுமே அல்லாமல் வேறுவிதம் ஆகா. அவ்வினைப் பயனின் காரியமே பிணி. இதுவும் கருவில் அமைப்பு. கீல்பிடிப்பு முதலிய வாதநோய்கள் உண்டாக கிரகநிலைகளும், கோள்களும் காரணமென மணிமந்திர வைத்திய நூல் கூறியுள்ளது.

நோய் வரும் காரணங்கள் பற்றி பரராச சேகரத்தின்படி,

"காணவே மிகவுண்டாலுங் கருதுபட்டினி விட்டாலும்
மான்னையார் கண் மோகமறக்கினு மிகுந்திட்டாலும்
ஆணவ மலங்கடம்மை யங்கனே விடாததாலும்
வானுதன் மடநல் லாளே வாதங்கோ பிக்குங் கானே"

பயம், எல்லோரிடமும் கோபம் கொள்ளல், மிகுதியாக ஓடல், மிகுந்த துக்கம், தினமும் உடலின்மேல் காற்றுப்படல் போன்றவற்றாலும்,

"காலங்கண் மாறியுண்ணுங் காரியத் தாலுந் தண்ணீர்
சாலவே யருந்தினாலுந் சந்திலுட் கார்ந்தாலும்
கோலமாம் புளிப்பு நெய்யை வருந்தினாலும்
வால்வார் முலை நல்லாளே வாத முற்பவிக்குங் காணே"

- பரராசசேகரம்

வாத நோய் வருவதற்கு காரணம்:

"வாதமேபிறப்பதற்கு வறட்சியாரு
மாதலால்குளித்தியாலு மதிலுறும்வாதரோகம்
நீதிசேரதனிலுள்ள நிறங்குணமிதற்குமுண்டு

- யூகிமுனி வைத்திய காவியம்

வாதம் பிறப்பதற்கு காரணம் உடல் வறட்சியடைவதாகும். உடல் மிகவும் குளிர்ந்து காணப்பட்டலும் வாதரோகம் உண்டாகும். இதற்கான தனி குணமுண்டு நம் உடலில் இத்தகைய குணங்கள் இரந்தாலும் வாதகுணம் மிக்க உடல் என்று கூறலாம்.

"என்னவே வாதம் தாணென்பதாகும்
இகத்திலே மனிதர்களுக்கு செய்யுவாறு
பின்னவே பொன்தனையே சோரங் செய்து,
பெரியோர்கள் பிராமணரைத் தூகூடிணித்தும்,
வன்தேவற் சொத்திற் சோரஞ் செய்து
மாதா பிதா குருவை மறந்த பேர்க்கும்
கன்னவே வேகத்தை நிந்தை செய்தல்
காயத்தில் கலந்திடுமே வாதந் தானே"

- யூகி சிந்தாமணிபாடல் 243

"தானென்ற கசப்போடு துவர்ப்புறைப்பு
சாதகமாய் நெஞ்செலுச் சமைத்த வண்ணம்
ஆனென்ற வாறினது பொசித்தலாலும்
ஆகாயத் தேறலது குடித்தாலும்
பானென்ற பகலுரக்க மிராவிழிப்பு
பட்டினியே மிகயுறுதல் பாரமெய்தல்
தேனென்ற மொழியார்மேள் சிந்தையாதல்
சீக்கிரமாய் வாதமது செனிக்குந் தானே".

தாய், தந்தை, குரு இவர்களை மறத்தல், வேதத்தைப் பழித்தல், கசப்பு, துவர்ப்பு, உறைப்பு சேர்ந்த உணவை அருந்துதல், ஆறின உணவை உண்ணல், தேங்கிய நீர், லாகிரியானைகள், சாராயம் குடித்தல், பகலில் தூங்கி இரவில் விழித்திருத்தல், அதிகமாக பட்டினி கிடத்தல், மிகுந்த சுமையைத் தூக்குதல், பெண்ணின் மேல் சதாநினைப்புக் கொள்ளல் ஆகிய காரணங்களால் வாதநோய் உண்டாகும்.

"வளியுமைந் தன்னிலை கெட்டு
வலியுடன் வீக்கச் சுரமும் காய்ந்து
மூட்டுகள் தோறும் முடுக்கியே நொந்து
மூட்டுகள் தன்னில் நீரும் சுரந்து
தாங்கொணா வலியுமா நொந்திடுமம்மே"

- சபாபதி கையே

Following precipitating factors are caused the disease,

- Increased intake of tuber
- Wandering of chill weather
- Drenching in Rain
- Living in hilly region
- Excessive sexual intercourse
- Hereditary
- Excessive intake of bitter, astringent, acrid taste food, intake of varagu thinai and altered sleep pattern also contribute to vatha disease.

Environmental factors (புறசூழ்நிலைகள்)

"வாத வர்த்தனை காலமேதோ வென்னில்
மருவுகின்ற ஆனி கற்கடமாகும்
ஆதவைப் பசியோடு கார்த்திகை தன்னில்
அடருமே மற்ற மாதங்கள் தன்னில்
போகளே சமிக்குகின்ற காலமாகும்."
பொருந்தியே யிவர் தொழில் தான் கண்டிறத்தல்
காதவே கண்மூடல் கைகால் சைத்தல்
கடிந்தோட்ட முடக்கலொடு நீட்டவென்னே".

- யூகி சிந்தாமணிபாடல்

From the month of Aani to Karthigai (June to December), vatha diseases are precipitated, hence the seasonal factors are involved and facilitate the vatha diseases.

"பதுமத்தை பூக்க வைக்கும் பானுமிக்க காயும்
முதுவேனி லிற்பு விந்நீர் முற்றும் - கதுமென
வற்றும் கப.ங்கும் வாயுமிகும் வாழ்மாந்தீர்க்
குற்ற நலிக் கேதிதென் றோது"

- மருத்துவர் தனிப்பாடல்

விளக்கம்

முதுவேனில் காலத்தில், சூரியவெப்பத்தின் காரணமாக பெரும் வாரியாக நீர்ஆவியாக்கப்பட்டு பூமியில் வறட்சி நிலவும். அதுபோல் நமது உடலில் வறட்சி ஏற்பட்டு வளிநோய் வருவதற்கு ஏதுவாகிறது.

பழக்கவழக்கங்கள்

"வெய்யிலில் நடக்கையாலும் மிகத்தண்ணீர்
செய்யிழை மகளிரைச் சேர்ந்தனு பவிக்கையாலும்
பையனே உண்மையாலும் பாகற்காய் தின்கையாலும்
தையலே வாதரோகம் சனிக்குமென் றறிந்து கொள்ளே"

- தேரையர் வாகடம்

- சூரிய வெப்பத்தில் அதிக தொலைவில் நடத்தல்
- அதிக தண்ணீர் குடித்ததாலும்
- அதிகளவு பாகற்காய் உண்ணுவதாலும்
- அதிகளவு காமம் துய்ப்பதாலும் வளிநோய் ஏற்படும்.

Diet

"வளிதரு காய் கிழங்கு
வரைவிலா தயிலல் கோை
முளிதயிர் போன்மிகுக்கு
முறையிலா வுண்டி கோடல்
குளிர்தரு வளியிற் றேகங்
குளிப்புற வுலவல் பெண்டிர்
களித்தரு முயக்கம் பெற்றோர்
கடிசெயல் கருவியாமல்"

Diet and health which gives rise to vatha dhosa (ie) excessive intake of potato like roots and banana, excessive intake of cold substances like curd, exposure to cold, staying in hill station which increase kabam causes this disease. Further this disease is followed by megha noi and may be hereditary.

Physical factors

"பகரவே வாதமது போகித்தப்போ
பண்பாக பெண்போகம் அதுதான் செய்யில்
தகாவே வெகுதூர வழிநடக்கில்
நளிரான காற்றுமே பனிமேல் பட்டால்
நிகரவே காய்கள் கனிகிழங்கு தன்னை
மிக வருந்தி மீறியே தயிர்தான் கொண்டால்
முகரவே முதுகெலும்பை முறுக்கி நொந்து
முழங்காலும் கணுக்காலும் கடுப்புண்டாகும்.
- யூகி சிந்தாமணி

Indulging in the sexual act during vitiation of vatha, walking for a long distance, exposing to dampness and cold, harmful combination like taking excessive curd after eating fruits, vegetables and tubers causes toxic factors which affects bone and muscle.

"தானென்ற கசப்போடு துவர்ப்பு கைப்பு
சாதகமாய் மிஞ்சுகினும் சமைத்த வன்னம்
ஆனென்ற ஆறினது புசித்த லானும்
ஆகாயத் தேறலது, குடித்தலாலும்

பானென்ற பகலுறக்க மிராவிழிப்பு
பட்டினியெ மிகவுறுதல் பாரமெய்தல்
தேனென்ற மொழியார் மேற்சிந்தை யாதல்
சீக்கிரமாய் வாதமது செனிக்குந்தான
- யூகி சிந்தாமணி

Intake of food item which are excess bitter, astringent and pungent tastes, intake of old cookded food items, drinking rain water, sleeping during day time and wakening at night, undue starving, strain due to excessive weight lifting and sexual perversion.

According to Pararasa sekaram

தொழில் பெறுகைப்புக் கார்த்தல் துவர்த்தல் விஞ்சுனுஞ்சோறும்
பழையதாம் வரகு மற்றைப் பைந்தினையருந்தினாலும்
எழில் பெறப் பகலுறங்கி இரவினிலுறங்காதலாலும்
மழை நிகர் குழலினாலே வாதங்கோ பிக்குங்காணே

Excessive intake of bitter, astringent, pungent taste diet, day sleeping, wakening during night intake of old cooked food items.

காலங்களின் மாறிபுண்ணும் காரியத் தாலுந்தண்ணீர்
சாலவே யருந்தினாலுஞ் சந்தியி லுட்கார்ந்தாலும்
கோலமாம் புளிப்பு நெய்யைக் குறைவற வநருந்தினாலும்
வாலார் முலைநல்லாளே வாதமுதற் பவிக்குங்காணே

Sitting in cold breeze, excess intake of sour and ghee in food items.

In theraiyar vagadam

வெய்யிலில் நடக்கையாலும் மிகத்தண்ணீர் குடிக்கையாலும்
செய்யிழை மகளிரைச் சேர்ந்தன பவிக்கையாலும்
பையனே உண்மையாலும் பாகற்காய் தின்கையாலும்
தையலே வாதரோகம் சனிக்கு மென்றறிந்து கொள்ளே.
- தேரையர் வாகடம்

Excessive walking in hot sun, excessive intake of water, over sexual indulgence, intake of bitter gourd etc. May play a disturbing role in the normal functions of vatham.

Internal causes

Kanma as a cause

In siddha system, many diseases are said to be precipitated by kanma, which means the deeds, good or bad committed by an individual in his previous and present births. Vatha diseases, according to agasthiyar kanma kandam – 300 may also precipitated by kanma.

Vadha kanma varalaru

நூலன்ற வாதம் வந்த வனகதானேது
துண்மையாய்க் கன்மத்தின் வகையைக் கேளு
காலிலே தோன்றியது கடுப்பதேது
கைகாலில் முடக்கியது வீக்கமேது
கோலிலே படுகின்ற விருட்சமான
குழந்தை மரந்தனை வெட்டல் மேல் தோல் சீவல்
நூலிலே சீவ ஐந்து கால் முறித்தல்
நல்ல கொம்பு தழைமுறித்தல் நவித்தல் தானே

- அகத்தியர் கன்ம காண்டம்

If attribute the following psychological factors such as removing the bark of living trees, breathing the legs of the animals, cutting the trees in the living branches and removing leaves.

Due to karmic law

அந்தணர் கற்பு மாதர் அருளிய சாயத்தாலும்
முந்திய வினையாலும் முகிர்கர்ப்ப மேகத்தாலும்
சிந்தையிற் கொடுமையாலும் சிவகுரு நிந்தையாலுந்
தொந்தமாம் வியாதியாலும் தோன்றிடும் குலைதானே.

- அகத்தியர்

Clinical features of keelvayu

"பித்த கீல்வாயு தன்னாற் பிறங்கு கீல்மூட்டு வீங்கிச்
சித்தர் செல் மருத்துவத்துஞ் சீர்படாதன்னமத்தால்
தத்தறு காய்ச்சல் கண்டு சாலவே தனைதான் தந்தே
மெத்தற சிகிச்சை தன்னால் மென்மேல் நீங்குமப்பா"

- சபாபதி கையேடு

- மூட்டுகளில் வீக்கம் உண்டாகும்
- மூட்டுகளில் வலி காணப்படும்

- தீக்குற்ற மிகுதியால் கீல்களில் பசை வறண்டு, பசையற்ற கீல் அசையும் போதெல்லாம் வலி உண்டாகும். சில வேளைகளில் கீல்கள் பொருத்துகள் ஒன்றோடொன்று ஒட்டிக் கொண்டு நடக்க முடியாமல் காணப்படும்.

நோய் நிதானங்கள் என்னும் நூலில்

"கால் கையுளைந்து திமிருண்டாய்க் கண்ணுந்துங்கிச் சோபித்துக்
கோலஞ் செய்யுமங்கமெல்லாம் குத்தும் சற்றே கனங்கொள்ளும்
சீலமிகுந்து நீர்காணிற் சிறு முடுக்குமென
வாலதடங்கவார் குழலே வருத்தும் வாதரோகமிதே"

- கால், கை உளைதல்
- தமிர்தல்
- கண்தூங்கல்
- அங்கமெல்லாம் குத்தல், கனத்தல்
- சிறுநீர் கட்டல்

மற்ற நோய்களின் பின்விளைவு:

"தொல்லை செய்ய இன்றும் வெகு வாத நோய்கள்
தொல்லுலகில் மாந்தருக்குக் காண்பதுண்டு
எல்லையில்லா வாதநோய் நெர்மைத்தன்னை
இயல்பாக அறிந்திடவே விபரங்களே"

சன்னி, மூளைநோய், பிருக்கநோய்கள், தண்டுவட நோய்கள், சூதம், வங்கம், ஆகிய மருந்துகளை முறைகேடாக பயன்படுத்துவதாலும் வாதநோய்கள் உண்டாகும்.
வாதம் மிகு குணம்

அறியவிம் மூன்றின் தன்மை சொன்னார்நந்தி
எறிய நல்வாத மெறிக்குங் குணங்கேளு
குறியென்க் கைகால் குளைச்சு விலாசந்து
பறியென நொந்துமற் பச்சை புண்ணாகுமே
புண்ணாய் வலிக்கும் பொருமும் குடலோடித்
தண்ணா மலத்தைத் தம்பிக்கும் போக்கது
ஓண்ணா ஆசனமுறவே சுரக்கிடும்
மண்ணார் குளிர்சீடும்பருத்திடும் வாதமே"

- சிகிச்சாரத்ன தீபம்

பிணியறிமுறைமை

உடலைப் பிணித்தலால் நோயைத் தெரிந்து கொள்ளுகின்ற ஒழுக்கம் எனப்படும்.

- பொறியாற்றேர்தல்
- புலனாலறிதல்
- வினாதல்

பொறியால் அறிதல்

It means examining the patient by the physician for proper diagnosis. "Pori" is considered "Five sense organs" namely,

1. மெய் (skin)
2. வாய் (Tongue)
3. கண் (Eye)
4. மூக்கு (Nose)
5. செவி (Ear)

ஞானேந்திரியங்களின் ஆய்வு

செவி	ஒலி அறிய செய்தல்	இயல்பு
மெய்	உடலில் ஊற்றை அறிதல்	முழங்கால் மூட்டுகளில் வீக்கம், வலி
கண்	ஒளியை அறிய செய்தல்	இயல்பு
நாக்கு	சுவையை அறிய செய்தல்	இயல்பு
மூக்கு	வாசனை நுகர செய்தல்	இயல்பு

கன்மேந்திரியங்களின் ஆய்பு

வாய்	வசனிக்கச்செய்யும்	இயல்பு
கை	இடுதலும், ஏற்றலும்செய்யும்	இயல்பு
கால்	நடக்கச்செய்யும்	முழங்கால் மூட்டுகளில் வலி, நடக்க சிரமம்
எருவாய்	மலத்தை கழிக்கும்	மலச்சிக்கல்
கருவாய்	கரு, சுக்கிலத்தைக் கழிக்கும்	இயல்பு

எண்வகைத்தேர்வு

"வாதத்தில் சேத்துமம் மாகில் வலியோடு வீக்கமுண்டாம்"

- அகத்தியர் நாடி

"அறிந்துபார் வாதமே தனித்தானால்

சரிந்திடவே கால் முடக்கும்".

- அகத்தியர் ரத்தின சுருக்கம்

"காணப்பா வாத மீறில் கால்கைகள் பொரந்தி நோகும்
வாதம், வாதபித்தம், பித்தவாதம் - காவியநாடி

1.	ஸ்பரிசம்	-	பாதிக்கப்பட்டுள்ள மூட்டு பகுதியில் மித வெப்பமாகவோ, இயல்பாகவோ காணப்படும்.
2.	நா	-	இயல்பு, வாதநோயில் நா துடித்து இருக்கும்.
3.	நிறம்	-	இயல்பு, மாநிறம்
4.	மொழி	-	சமஒலி
5.	விழி	-	இயல்பு, வாதநோயில் விழி கறுத்து இமைதடித்திருக்கும்.
6.	மலம்	-	பாதிப்பு (மலச்சிக்கல் காணப்படும்)
7.	மூத்திரம்	-	கடுப்புடன் கொஞ்சமாக இறங்கும்.

Neikkuri

"அருந்து மாறிரதமும் அவிரோதமதாய்
அ.ஃகல் அலர்தல் அகாலவூண் தவிர்தழற்
குற்றள வருந்தி உறங்கி வைகறை
ஆடிக் கலசத் தாவியே காதுபெய்
தொரு மூகூர்த்தக் கலைக்குட் படுநீரின்
நிறக்குறி நெய்க்குறி நிருமித்தல் கடனே"

- சித்த மருத்துவாங்கச்சுருக்கம்

எண்ணெய் விட்டுப் பார்க்கும் நீரின்விழி

நிறக்குறிக் குரைத்த நிருமாண நீரிற்
சிறக்க வெண்ணெய்போர் சிறுதுளி நடுவிடுத்
தென்றுறுத் திறந்தொலி ஏகாதழைத்தி
னின்றதிவலை போம் நெறிவிழியறிவும்
சென்றது புகலுஞ் செய்தியை யுணரே

- நோய்நாடல் நோய்முதல்நாடல் பிரிவு-1

"அரவென நீண்டின்.ஃதே வாதம்
ஆழிபோற் பரவின் அ.ஃதே பித்தம்
முத்தொத்து நிற்கின் மொழிவ தென் கபமே
அரவில் ஆழியும் ஆழியில் அரவும்
அரவின் முத்தும் ஆழியில் முத்தும்"

- சித்த மருத்துவ நோய்நாடல் நோய் முதனாடல் திரட்டு

Neerkkuri

"வந்த நீர்க்கரி யெடை மணம் நுரை எஞ்சலெ
றைந்திய லுளவை யறைகுது முறையே"
- சித்த மருத்துவாங்கசுருக்கம்

Urine is examined for the following Neerkuri

Niram	-	Colour
Edai	-	Specific gravity
Manam	-	Smell
Nurai	-	Frothy nature
Enjal	-	Quantity of urine voided

In Azhal Keel vaayu straw or hay coloured urine was noticed in Neerkuri.

PARUVA KAALAM

Siddhars are classified a year into six seasons,

Kaalam	**Kutram**	**Suvai**
Kaarkaalam Aavani & Purattasi (Aug 16 – Oct 15)	Vatham (Vetrunilai valarchi) Pitham (Thanilai valarchi)	Enippu Pulipu Uppi
Koothirkaalam Iypassi & Karthigai (Oct 16 – Dec 15)	Vatham (-) (Thanilai adaithal Pitham (Vetrunilai valarchi)	Enippu Kaippu Thuvarppu
Munpanikalam (Margazhi & Thai (Dec 16 – Feb 15)	Pitham (Thanilai adaithal)	Enippu Pulippu Uppu
Pinpani kaalam Massi & Panguni (Feb 16 – Apr 15)	Kabam (Thanilai valarchi)	Enippu Pulippu Thuvarppu

7 உடல் தாதுக்களின் ஆய்வு

வ.எண்	உடல்தாதுக்கள்	தொழில்	அழல்கீல்வாயுவில் காணப்படுவது
1.	சாரம்	உடலை, மனதை ஊக்கமுறச்செய்தல்	பாதிப்பு
2.	செந்நீர்	அறிவு, வன்மை, ஒளி செருக்கு இவைகளை நிலைக்கசெய்தல்	இயல்பு
3.	ஊண்	உடலில் உருவத்தை அமைத்தல், என்பை வளர்த்தல்	பாதிப்பு
4.	கொழுப்பு	உறுப்புகள் இயங்க அவற்றிற்கு நெய்ப்பு பசை ஊட்டுவது	பாதிப்பு (கீல்களில் நெய்ப்பு பசை குறைதல்)
5.	எலும்பு	உடல் அசைவிற்கு அடிப்படையாயிருத்தல்	பாதிப்பு
6.	மூளை	என்புக்குள் நிறைந்து வன்மையும், மென்மையும் தருவது	பாதிப்பு
7.	வெண்ணீர்	கருதோற்றத்திற்கு முதலாய் நிற்பது	இயல்பு

In Azhal keel vayu,

Saaram, kozhuppu, Oon and Enbu thathukkal are chiefly affected.

முக்குற்ற வேறுபாடு

வளிமிகு வபான வியான

வாயுக்க ளதிக ரிக்கும்

இளமிக மலநீர்க் கட்டும்

இயம்பிய வபானன் செய்யும்

வாதம்

வ.எண்	வாதம்	தொழில்	அழல்கீல் வாயுவில் பாதிக்கப்பட்ட குற்றம்
1.	பிராணன்	மூச்சு வாங்கல் விடுதல் செய்யும்	இயல்பு
2.	அபானன்	கீழ்நோக்கி மலத்தைத் தள்ளும்	பாதிப்பு (மலக்கட்டு)
3.	வியானன்	உறுப்புகளை நீட்டி மடக்க செய்யும்	பாதிப்பு (கால்களை நீட்டி மடக்கசிரமம்)
4.	உதானன்	உணவின் சாரத்தை உடலில் நிறத்தம்	இயல்பு
5.	சமானன்	மற்ற வாயுக்களை	பாதிப்பு (மற்ற வாயுக்கள்

		சரிபடுத்தும்	பாதிப்பு)
6.	நாகன்	எல்லா கலையும் கற்கும் படி செய்தல்	இயல்பு
7.	கூர்மன்	கண்களை திறக்கவும் மூடவும் செய்யும்	இயல்பு
8.	கிருகரன்	நாவிற் கசிவையும் நாசியிற் கசிவையும் உண்டாக்கும்	இயல்பு
9.	தேவதத்தன்	சோம்பல், உடல் முரித்தல் உண்டாக்கும்	பாதிப்பு (வயது காரணத்தால்)
10.	தனஞ்செயன்	இறந்த பின் மூன்றாம் நாள் தலைவெடித்து வெளியேறும்	-

பித்தம்

வ.எண்	**பித்தம்**	**தொழில்**	**அழல்கீல் வாயுவில் பாதிக்கப்பட்ட குற்றம்**
1.	அனற்பித்தம்	உண்ட உணவு பொருளை செரிக்கும் படி செய்யும்	பாதிப்பு (பசியின்மை, உணவு செரியாமை)
2.	இரஞ்சகம்	செந்நீரை மிகுதிபடுத்தும்	பாதிப்பு (செந்நீர் குறைவு)
3.	சாதகப்பித்தம்	விருப்பமமான தொழிலை செய்து முடிக்கும்	பாதிப்பு (கால்களை நீட்டி, மடக்க சிரமம்)
4.	ஆலோசகபித்தம்	கண்களுக்கு பொருளை தெரிவிக்கும்	இயல்பு
5.	பிராசக பித்தம்	தோலுக்கு ஒலியை கொடுக்கும்	இயல்பு

ஐயம்

வ.எண்	**கபம்**	**தொழில்**	**அழல்கீல்வாயுவில் பாதிக்கப்பட்ட குற்றம்**
1.	அவலம்பகம்	மற்ற நான்கு ஐயங்களுக்கும் பற்று கோடாயிருக்கும்	பாதிப்பு
2.	கிலேதகம்	செரித்தல்	இயல்பு
3.	போதகம்	சுவையை அதிகரிக்கும்	இயல்பு

4.	தற்பகம்	கண்களுக்கு குளிர்ச்சி	இயல்பு
5.	சந்திகம்	கீல்களில் நின்று இயற்கையாய் எல்லாக் கீல்களையும் ஒன்றோடொன்று பொருத்தி தளர செய்யும்	பாதிப்பு (நீட்டி மடக்க சிரமம்)

நோய்கணிப்பு விவாதம்

வளிக்கீல்வாயு

வலிக்குத்தல் வீக்கங்காணும் வாய்த்தொண்டை வறட்சி காய்ச்சல்
தலைவலி மார்துடிப்புத் தாங்கொணா வலி வீக்கந்தான்
நிலவு காங்கணுக் குறங்கு நீடு தோள் முழங்கைக் காற்காம்
மலக் குடற்கட்டு வேர்வை வாதக்கீல் வாயு விதாமே

- சபாபதி கையேடு

அறிகுறிகள்

- தாங்கமுடியாத வலி
- கால்விரல்
- முழங்கால் மூட்டு
- இடுப்பு மூட்டு
- முழங்கை மூட்டு
- தோள் மூட்டு
- இம்மூட்டுகளில் வீக்கம்
- வாய் வறட்சி, சுரம், தலைவலி, படபடப்பு, மலச்சிக்கல், வியர்த்தல் ஆகிய அறிகுறிகள் உள்ளன.

ஐயக்கீல்வாயு

"கருதருங் கபக்கில் வாயு கண்டிடின் உடல் இளைக்கும்
உருமெலிவாக்குங் கொள்ளும் உண்டியைச் சுருக்கு மின்பந்
தருதுயில் நீங்கு முட்டிற் நாங்கொணா வலுவையாக்கும்
இருமலே விக்கல் வாந்தி, சோபை பாண்டெழுப்பும் பாரே.

- சபாபதிகையேடு

அறிகுறிகள்

- மூட்டுகளில் தாங்கமுடியாத வலி
- உடல்மெலிவு
- பசியின்மை
- விக்கல்
- வாந்தி
- பாண்டு

3. வளிஐயக் கீல்வாயு

"அவையம் வாதக் கபக்கீல் வாயுவான் வலி மிகுந்தே
உயங்கு நீர் கோத்து கீல்கள் ஓரியின் தலைபோற் காணும்
நயங்கொள்ள முடக்கல் நீட்டல் நண்ணிடா மெய்யுங் காயும்,
மயக்குறு முறக்மின்னாம்மன்னிய நெரிகட்டாமே

- சபாபதி கையேடு

அறிகுறிகள்

- மூட்டுக்களில் வலி
- வீக்கம்
- கீல்கள்
- நரியின் தலைபோல் காணப்படும்
- நீட்ட நடக்க முடியாது.

மருத்துவம்

மூன்றிலொன்று யர்ந்ததை முன்னறிந்து
முந்தியதனை யொழித்திட மருந்திடு
தணியும் நோயின் தந்திரமிதுவே
பேணிக் கணித்திடின் பிறவாய் பின்குணம்

- நோய்நாடல் நோய் முதல்நாடல் (பாகம்-1)

The treatment in siddha system includes not only the removal of signs and symptoms of a disease but also in total uprootment of the diseases.

This is achieved by normalising the deranged mukkutram there by retaining body's natural health. The recurrence of the disease is prevented by the practice of yoga. According to siddha system line of the treatment is divided into 3 types.

1. Kappu (Prevention)
2. Neekam (Treatment)
3. Niraivu (Restoration)

1. Kappu (Prevention)

The preventive azhal keel vayu is,

1. Control the body weight by diet & exercise.
2. Modify the nature of work which gives stress to a particular joint.
3. Avoid excess intake of sour, astringent and bitter tasted food.

In azhal keel vayu the deranged vatham and other toxic products of digestion and metabolism is brought to its normal state by purgation (விரேசனம்)

விரேசனத்தால் வாதந்தாழும்

15ml of vellai ennai is given the luke warm water at early morning before starting the treatment with trial drug.

a. Internal Medicine

Eranda moola chooranam	-	3 to 6 gm in two divided doses/day after food.
Adjuvant	-	Hot water and Honey

b. External medicine

c. *Kungilia thylam* - External application over the affected joints.

3**. Complementary therapies**

Apart from other department, Sirappu Maruthuvam department gives equal importance to complementary therapies in siddha system of medicine along with its internal & external medicines.

There are several complementary therapies followed in siddha system of medicine such as Kattu, Pattru, Nasiyam, Attai vidal, Thokkanam, Ottradam, Varmam Asanam, Vedhu etc.

Complementary therapies which are taken into account for this study are:

SIRAPPU MARUTHUVAM FOR AZHAL KEELVAYU

1. PATTRU

2. THOKKANAM

1. PATTRU

The pattru in siddha is obtained from plant extracts or grinding raw drugs with or without processing them and are either heated or not heated ,is made into a thick paste and applied, or pasted on the affected area**.**

Introduction :

Pattru (poultice) also called cataplasm is a soft moist mass, often heated and medicated that is spread on skin to treat an aching inflamed or painful part of the body. Pattru may also be refered to as porous solid filled with solvent used to relieved muscle strain and sprain. Pattru treatment is very successful because ,skin the largest organ of the body and one of the first line of defense against disease has

greater ability to absorb it. When herbal pattru are applied to the painful area of the skin. It absorbs pharmacologically active substance immediately into it. It is a non invasive cost effect, and easy procedure.

Mechanism:

Whent patru is applied to the painful area of the skin it absorbs the pharmacologically active substance immediately into it. The absorption in the skin. Is mostly transcellular. It is unlikely that noticeable absorption occurs between cells or through sweat pores and hair follicles. Drug with low molecular weight (below 800dallons) with high water and lipid solubility shows greater penetration. The vehicle of the drug also plays a vital role. Acid PH of the stratum corneum decreases the permeability of the drugs. So when pattu made of water is applied the stratum corneum gets hydrated resulting in better absorption.

Pattru- Thrust Areas

- Traditionally topical herbal preparations make use¬ of enhancers to facilitate the quality and quantity of skin transfer.
- Herbs high in tannins, like Rheum emodi¬ (Irevalchinni), which have an astringent effect, to tighten, and protect the skin and reduce bleeding, prevent capillaries rupture, produce contraction of organic tissues.
- Rhizomes like Ginger, Acorus calamus (Vasambu)¬ are anti-inflammatory, when used topically for arthritis, etc., Topical preparations must contain compounds that penetrate the skin, inhibit pain receptors such as transient receptor potentialaction channels and cyclooxygenase-2, to relieve pain. Inhibition of pain in the skin disrupts the pain cycle and avoids exposure of internal organs to large amounts of toxic compounds.
- Poultice can be used for Rashes, Viral infections¬ like herpes, Bacterial infections, Fungal infections, Parasitic infections like lice, pigmentation disorders, tumours and cancers, trauma due to injury or cut or blow.They act as emollient, anti-microbial, antibacterial, anti-fungal etc.
- They will help to reduce the bacterial load in the¬ area, lowering the chances of infection when the boil comes to a head and opens on its own.
- Poultice act as chemical Cautery. It helps healing¬ in abscess by draining the fluid including pus and also degrade pile mass.

- Plants like Mirabilis jalapa (Andimalli)tubers do¬ have their effect in wound care and removes functional obstructions in the body as "deobstruent"
- Pattru plays vital role in swelling of filariasis, can¬ be used to soften and reduce the swelling of lymphedematous tissues. In order to increase the efficacy of pattru there are¬ varies material used to triturated along with the main source material. They are herbal juice, egg white, butter milk, curd, salt, ginger, lime juice, hot water and tamarind juice.
- The plant contains sesquiterpene lactones, (and¬ also steroid saponins, alkaloids) which help to reduce swelling, and flavonoids, which strengthen blood vessels reducing the leakage of blood under the skin that occurs with bruising.
- Poultices like sodium chloride may also be¬ heated and placed on an area[4]/ or on application that produces redness of the skin (counter irritant), causing dilation of the capillaries and an increase in blood circulation as a rubeifacient.
- Topical agents providing anti-oxidant and antiinflammation effects on the diseased tissues after¬ penetrating the skin barrier is now a proven fact.

Therapeutic sources:

- Herbal drugs
- Mineral drugs.
- Animal drugs.
- Medicated oil's& tablet's

Indications

1. Joint pain
2. Trauma inflammation & knee inflammation
3. Muscle tension
4. Skin disease
5. Body pain.
6. Treat blood clot
7. Headache ,sinusitis,nasalblock .

THOKKANAM

Thokkanam is the siddha way of touch therapy. it is the physical manipulation of the body usually done with or without oil application. It is very effective for neurological and musculoskeletal problems. It also promotes mental and physical fitness. According to siddha, disease in the body occur due imbalance of three humours that is vatham, pitham and kapham which in turn are governed by five fundamental elements – Akayam (Space, vayu (air), Theyu (fire), Appu (water and Mann (Earth. Thokkanam is one of the 32 types of external medicines mentioned in siddha literature. In this technique, the physician uses his hands on the body of the patient in 9 different unique ways with or without using medicated oil with acurative or palliative point of view. The 9 different techniques in thokkanam which makes siddha medicine unique in all aspects. They are

1. Thattal or patting technique
2. Irukkal or tightening
3. Pidithal or holding
4. Murukkal or twisting
5. Kattal or tying
6. Azhuthal or pressing
7. Izhuthal or pulling
8. Mallathuthal or supinating
9. Asaithal

Benefits of Thokkanam

- Helps to cure vatha disease even without internal medicines.
- Chronic disease like spondylosis, lumbago, disc prolapse, hemiplegia, neurological conditions etc are managed well through thokkanam.
- Improve circulation
- Treats obesity
- Helps in pain relief
- Removes indigestion, constipation and flatulence
- Induce sleep
- Helps maintain normal blood pressure
- Restores vatham, pitham and kapham in normal ratio
- Regulates vatha humour.

- Delays the aging process
- Helps to rejuvenate the body.
- Helps to increase the quantity of oxygen in the cells.
- Helps to prevent wrinkles and maintain the complexion of the skin.
- Tones the muscles
- Helps to keep the joint flexible
- Improves the complexion of the skin
- Improves energy and mental alertness.

Introduction

External remedies in siddha are classified as 32 in number. The unique remedy of its kind among all and which is subdivided into nine more procedures in thokkanam. Initially these procedures were used only for royal families to enhance rejuvenation and latter turned into a therapeutic application.

Thokkanam as a whole focuses on treating disease caused by aggravation of 'VATHAM' the kinetic force of the body. The humoral theory of siddha states that vatham is the acitve force responsible for the physiological functioning of neuromuscular as well as musculo skeletal systems.

Thokkanam is also useful in disease where pitham as well as kapham is deranged. A simple thokkanam session wipes of sedentary feel which is a kapham aggravation.

Toning the skin, muscles and nerves where vatham lives. It is synonymously called as Marthanam. Marthanam is performed by mallars (wrestlers) in older days. As per siddha basic principles the meeting points of muscles, nerves, joints and skin including hair roots are places of flow of vital vatham energy. A depletion of vatham vital energy may lead to vatham derangements such as pain, altered tone, power, twitching, spasticity, rigidity numbness and neuritis.

Three humour theory and thokkanam

To have a sound knowledge in application of thokkanam clinically it is mandatory to know about three humour theory. Vatham is the force of creation. Pitha is the force of maintenance, and kapham is the force of destruction.

Vatham takes care of bodily funciton as below

1. Respiration - Uyirkal (Pranan)
2. Excretion - Keel nokku kaal (Abanan)
3. Circulation - Paravukal (Vyanan)
4. Digestion - Nadukkal (Samanan)

Thattal – Friction and Percussive strokes

Thattal covers more than 40% of techniques of Marthanam.

Friction strokes are used in joints, muscles and in tendons. Friction strokes are usually relaxing when applied gently. Therapist should not exceed the toleratble and pleasurable pressure.

Percussive strokes are sub divided into hacking, cupping and pinching – plucking. In hacking palms are open and faces each other.

Cupping is performed effectively in larger areas like trunk, back and abdomen.

Lifting little flesh in fingers and sliding them is pinching/plugging.

Benefits

1. Improves circulation
2. Release muscle tension.

Precautions

Precussive strokes directly on spine is to be avoided. Therapist hands and wrist should be held relax.

Irukkal

Irukkal is squeezing type of pressure. Irukkal is applied in conditions where a good nourishment to muscles and nerves is deficit. It is also called as wringling. It is usually performed across body and limbs. Wringing is usually applied in the end hours of Thokkanam. Squeeze and roll the muscle between your neck and shoulder. It's hard to tell from the photo that he's doing anything other than squeezing the muscle, But you should in addition to squeezing your muscle also pull or roll the muscle between your fingers. Try it. first squeeze the muscle, just like you did above. Then pull it a little and roll it in a small circle of back and forth. Try 7 slow squeeze and rolls on your trapezius muscle varying the intensity of each stroke. Let your muscles relax.

Purpose

Squeezing and Rolling increases your circulation and warms your muscles.

It also gives your fingers a good workout.

Ilutthal

Ilutthal is pulling. In this type of thokkanam, strokes are used to pull and stretch the muscles of the trunk and legs. Pulling is performed before wringing or along.

Murukkal

Murukkal is kneading. It is performed to release muscle tension and to improve circulation kneading is performed in areas which are fleshy. Action similar to that of kneading dough is to be performed here.

Pidithal

Both pressing and draming is performed in this variety. Press the muscle areas gently and drain them slowly. Draining is performed usually using the heel of the hand for larger areas and thumbs for smaller areas. Pidithal improves circulation and relaxes the muscles.

Aluthal

Aluthal is the combination of gliding and gentle pressing. Usually these two procedures initiates massage and repeatedly performed in the whole session gliding is the technique used to apply oil all over the body. Gentle pressing all over the body following gliding. Gliding can be done in longitudinal or circular motion.

Purpose

Gliding is a good beginning for every massage. It warms your skin and sends a message to your body that a massage is coming.

Tips

Velocity, volume and intensity are three variables you can use to change the effect each stroke has on you.

Volume

Try covering more skin with each stroke by spreading your fingers wide or make a with your hand

Velocity

Try varying the speed of your strokes

Intensity

Try varying the intensity of each stroke

Squeezing

Try it interlace your fingers. Rest the heels of your hands on either side of your thigh and squeeze your hands into your thigh muscles. Try 7 slow quad squeezes, slightly vary the location and intensity of each squeeze. Now try it on your other leg.

Purpose

Squeezing warms muscles, increases circulation and speeds recovery.

Stroke description

Bring pressure to bear on a muscle. Try squeezing your left biceps with your right hands. It really is a simple as squeezing the muscle. It should feel good.

Squeezing & Rolling

Try it: Squeeze and roll the muscle between your neck and shoulder. It's hard to tell from the photo that he's doing anything other than squeezing the muscle. But you should in addition to the muscle. Just like you did above. Then pull it a little and roll it in a small circle of back and forth. Try 7 slow squeeze and Rolls on your trapezius muscle varying the intensity of each. Stroke let your muscles relax.

Purpose

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Pressing

Try it. Take off your shoes and socks and give your foot a poke, press your thumb into the bottom of your foot and your other four fingers into the top of your foot. Try 7 slow presses. Experiment by varying intensity and moving your fingers slowly over your foot. Try it on your other foot.

Purpose

The press is powerful because it activates acupoints triggers trigger points, jump starts circulation, and sends endorphin cocktails flowing to every cell

Pressing and Rolling

Try it: Starting at your solarplexus. Press and roll your abs. Perform a series of small circular rolls with your first moving clockwise, until. You've covered your entire belly with your first slightly vary the intensity of each stroke. Alternately, relax and flex your abs. Feel the difference between pressing and pressing and rolling your abs. It's like night and day.

Purpose

Pressing and Rolling activates, acupoints triggers trigger points, jump starts circulation and sends endorphin cocktails cruising to stimulate every cell in your body.

Drumming

Try it: Drum your quads, use the sides of your hands to tap your thighs. Slightly vary the location of each stroke. Let your leg relax. focus on the rhythm and feeling of each stroke.

Purpose

Drumming is an energizing, stimulating stroke, used to get you moving.

Note

Massage therapists call this stroke trapotement It means drumming.

When you need to target a specific area of your body, switch over to manual mode. Customize your massage and choose from several programs to suit your needs for both upper and lower body. The upper body massages.

The thadavu murai is classified into two main parts. They are

1. Podhu thadaval murai
2. Upa thadaval murai

The pothu thadaval murai methods do proper alignment of the nerves, blood vessels, bones and muscles. With the help of medicated oils we should do the techniques. After that we have to relign the sara ottam and jeeva ottam in all varma points. By this we can give good health to the patient.

After doing this, we should check whether the patient needs uzhlthadaval murai or not. It it is needed we have to align and stimulate the tissues and internal organs.

In the first three days of treatment we should only do podhu thadaval methods, then in the 4^{th} and 5^{th} day podhu thadaval is done followed by uzhlthadaval.

Usually the treatment takes seven days. In the 6^{th} and 7^{th} day. We should only do podhu thadaval.

At the end of the thadaval murai in all the days of the treatment.

We have to give otradam, after that the patient should take hot water bath. After that the patient should take chukku kanji. The patient may take their food after an hour of these treatment methods. During the treatment days the patient must avoid sleep in the day time.

The patient should follow the following food restrictions after the thadaval murai. Chicken, uriddhal, small gram and tamarind during the treatment days. Because it may lower the effects of the treatment.

The patient should take 3 months rest after the treatment. Importantly he/she should not have sexual contact and severe exercises during the rest periods.

Massage (தொக்கணம்)

வாதம் முதலிய முக்குற்ற பிணிகள் உண்டாக்கும் வலியை வெறுங்கையாலோ (அ) தைலம் தடவியோ பிடிப்பது.

"தொக்கணத்தி னாலிரத்தந் தோல்ஊ ணிவைகட்கு
மிக்கு சவுக்கியஞ்ச மீரணும்பொ – மெய்க்கதிக
புட்டியுறக்கம் புணர்ச்சி யிவை கதிக்கும்
பட்ட அலைச்சலறும் பார்"

- **தேரன்**

of these 2 of the methods are very much beneficial in treating cervical spondylosis.

பிடித்தல்

"பிடித்தலி யங்கும் மைதியி னுந்தகும் பிந்தாதே – எண்ணெ
யுடுத்தது செய்யிற் றசவளி யூனுட லுந்தாதே
வேற்றது செய்யினுஞ் சூசிகை பாரிசை விட்டோடும் - புலி
போற்றது வாயுவு மற்றுது மேனலிப் பொட்டோடும்"

தொக்கணம் செய்யக்கூடிய 5 நிலைகளிலும் செய்யலாம். தைலம் தடவியோ, தடவாமலோ பிடித்துவிட வாத நோய்களுக்கு சிறப்பாக பொருந்தும்.

It is made on the upper fibers of trapezius muscle and the underlying bone.

இழுத்தல் (Pulling)

இழுத்தல் கிடத்த லிருத்த லிரண்டிற்கு மேராமே – என்பில்
முழுத்தது வண்ணுகங் கானமந் தக்கதி சீராமே
உருவுத லென்பது மித்தோழி லேநேரம் பூறாகி – மனம்
வெருவுறு மூன வினைகளை மெய்யடு வேறாகி
வளக்குறு மெண்ணெய் லேயிது செய்வது வல்லாண்மை – உடற்
களக்களுர் போக்கச் சுளுக்கென வாவதித் தொல்லாண்மை

இதை தைலத்தை பூசியே செய்யவேண்டும். எலும்புகள் நன்றாய்த் தெரியுமிடங்களிலும், தலையிலும் உருவும்போது மந்தமாக செய்யவேண்டும்.

இதனால் நரம்பில் ஊறி வறுத்துகின்ற வாயுக்கள், பிடிப்புகள், சுளுக்குகள் குணமாகும்.

Done for sternocleidomastoid muscles.

The treatment normally starts with applying the medicated oil on the affected area. It directly acts on lymphatic, muscular, nervous and vascular system.

- Strengthens muscle and skin
- Relaxes whole body
- Regulates nerve function
- Improve blood circulation
- Improve sleep

Through massage, the medicated oil applied permeates through the skin and reaches the tissues under them. It releives pain and tension by stimulation the sensory and motor nerves.

Benefits

It reduces the production of some hormones such as cortisol and nor epinephrine which are responsible for stress.

- Brings fresh oxygen to the affected tissues.
- Swelling and thickening of tissues are reduced

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MODERN ASPECT

KNEE JOINT

Structure

The knee is a modified hinge joint, a type of synovial joint, which is composed of three junctional compartments:

The patellofemoral articulation, consisting of the patella, or “kneecap” and the patellar groove on the front of the femur through which it slides and the medial and lateral tibiofemoral articulations linking the femur, or thigh bone, with the tibia, the main bone of the lower leg. The joint is bathed in synovial fluid which is contained inside the synovial numbrane called joint capsule. The posterolateral corner of the knee is an area that has recently been the subject of renewed scrutiny and research.

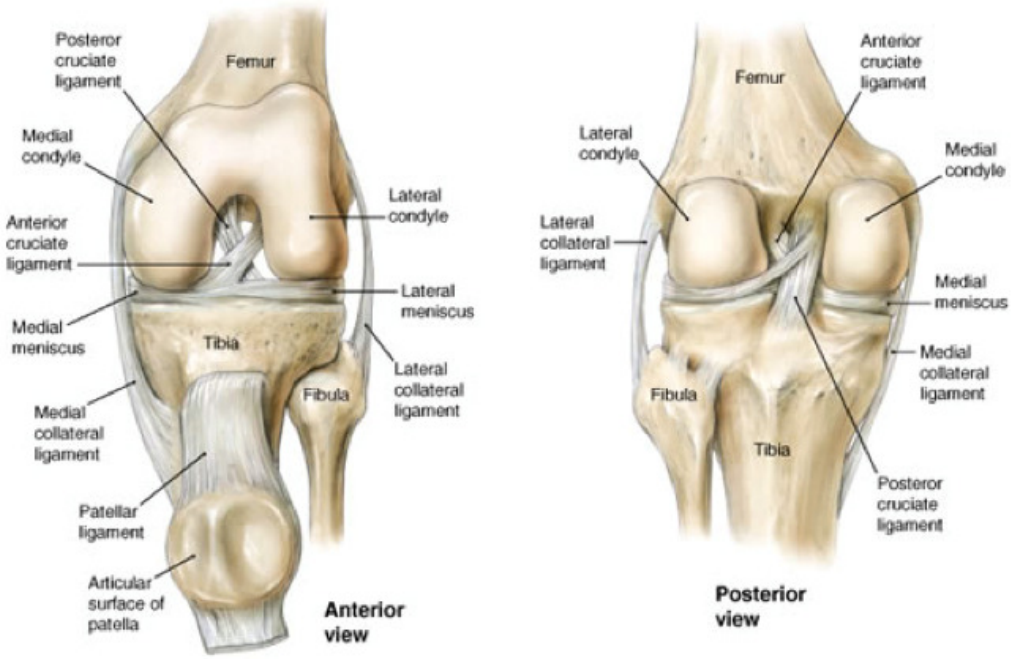
The knee is the largest joint and one of the most important joints in the body. It plays essential role in movement related to carrying the body weight in horizontal (running and walking) and vertical (jumping)directions.

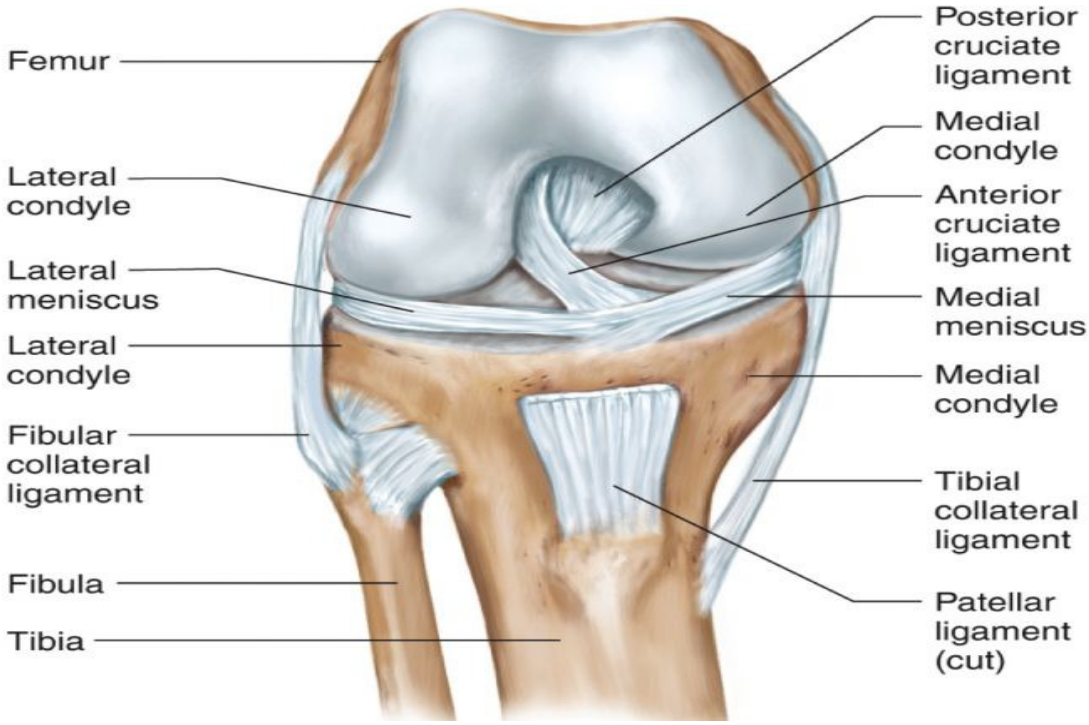
At birth, the kneecap is just formed from cartilage, and this will ossify between the ages of three and five years. Because it is the largest sesamoid bone in the human body, the ossification process takes significantly longer.

Articular bodies

The articular bodies of the femur are its lateral and medial condyles. These diverge slightly distally and posteriorly with the lateral condyle being wider in front than at the back while the medial condyle is of more constant width. The radius of the condyles curvature in the sagittal plane becomes smaller toward the back. this diminishing radius produces a series of involute midpoints. The resulting series of transverse axes permit the sliding and rolling motion in the flexing knee while ensuring the collateral ligaments are sufficiently lax to permit the rotation associated with the curvature of the medial condyle about a vertical axis.

The pair of tibial condyles are separated by the intercondyle eminence composed of a lateral and a medial tubercle.





The patella is inserted into the thin anterior wall of the joint capsule. On its posterior surface is a lateral and medial articular surface, both of which communicate with the patellar surface which unites the two femoral condyles on the anterior side of the bone's distal end.

Articular capsule

The articular capsule has a synovial and a fibrous membrane separated by fatty deposits. Anteriorly, the synovial membrane is attached on the margin of the cartilage both on the femur and the tibia, but on the femur, the suprapatellar bursa or recess extends the joint space proximally. The suprapatellar bursa is prevented from being pinched during extension by the articularis genus muscle. Behind, the synovial membrane is attach to the margins of the two femural condyles which produces tow extensions similar to the anterior recess. Between these two extensions, the synovial membrane passes in front of the two cruciate ligaments at the center of the joint, thus forming a pocket direct inward.

Ligaments

The knee joint is supported by following ligaments.

1. Fibrous capsule
2. Ligamentum patellae
3. Tibial collateral or medial ligament
4. Fibular collateral or lateral ligament
5. Oblique popliteal ligament
6. Arucuate popliteal ligament
7. Anterior cruciate ligament
8. Posterior cruciate ligament
9. Medial meniscus
10. Lateral meniscus
11. Transverse ligament

1. Fibrous (Articular) capsule

The fibrous capsule is very thin and is deficient anteriorly, where it is replaced by the quadriceps femoris, the patella and ligametum patellae.

Femoral attachment

It is attached about half to 1cm beyong the articular margins. The attachment has three pscial features.

a. Anteriorly, it is deficient

b. Posteriorly, it is attached to the inter condylar line and

c. Laterlly, it encloses the origin of the popliteus

Tibial attachment

It is attached about ½ to 1 cm beyond the articular margins. the attachement has three special features.

a. Anteriorly, it descends along the margins of the condyles to the tibial tuberosity, where it is deficient.
b. Posteriorly, it is attached to the intercondylar ridge which limits the attachement of the posterior cruciate ligament and
c. Posterior laterally, there is a gap behind the lateral condyle for passage of the tendom of the popliteus.

Home terms applied to parts of the capsule are as follows

Coronary ligament

The fibrous capsule is attached to the periphery of the menisci. The part of the capsule between the menisci and the tibia is sometimes called the coronary ligament.

Short lateral ligament

This is a cord like thickening of the capsule deep to the fibular collateral ligament. It extends from the lateral epicondyle of the femur, where it blends with the tendon of the popliteus, to the medial border of the apex of the fibula.

The capsular ligament is weak, It is stregthened anteriorly by the medial and lateral patellar retinaculo, which are extensions from the vastus medialis and lateralis, laterally by the iliotibial tract, medially by expansions from the tendons of the sartorius and semimembranosus and posteriorly by the oblique popliteal ligament.

2. Ligamentum patellar

This is the central portion of the common tendon of insertion of the quadriceps femoris, the remaining portions of the tendon from the medial and lateral patellar retinaculo. The ligamentum patellar is about 7.5cm long and 2.5cm broad. It is attached above to the margins and rough posterior surface of the apex of the patella and below to the smooth, upper part of the tibial tuberosity. The superficial fibres pass in front of the patella. The ligamentum patellae is related to the superficial and deep infrapatellar bcusae and the infrapatellar pad of fat.

3. Tibial collateral or medial ligament

This is a long band of great strength superiorly, it is attached to the medial epicondyle of the femur just below the adductor tubercle. Inferiorly, it divides into anterior and posterior parts.

The anterior or superificial part is about 10cm long and 1.25cm broad, and is separated from the capsule by one or two bursae. It is attached below to the medial border and posterior part of the medial surface of the shaft of the tibia. It covers the inferior medial genicular vessels and nerve, and the anterior part of the tendon of the semimembranosus and is crossed below by the tendons of the sartorius, gracilis and the semitendinosus. The posterior (deep) part of the ligament is short and blends with the capsule and with the medial meniscus. It is attached to the medial condyle of the tibia above the groove for the semimembranosus.

4. Fibular collateral or lateral ligament

This ligament is strong and cord-like. It is about 5cm long. Superiorly, it is attached to the lateral epicondyle of the femur just above the popliteal groove. Inferiorly it is embraced by the tendon of the biceps fencoris, and is attached to the head of the fibular in front of its apex. It is separated from the lateral meniscus by the tendon of the popliteus and by the capsule, the inferior lateral genicular vessels and nerve separate it from the capsule

5. Oblique popliteal ligament

This is an expansion from the tendon of the semimembranosus. It runs upwards and laterally, blends with the posterior surface of the capsule and is attached to the intercondylar line and lateral condyle of the femur. It is closely related to the popliteal artery and is pieced by the middle genicular vessels and nerve and the terminal aprt of the posterior division of the obturator nerve.

6. Arcuate popliteal ligament

This is a posterior expansion from the short lateral ligament. It extends backwards from the head of the fibula, arches over the tendon of the popliteus, and is attached to the posterior border of the intercondylar area of the tibia.

7. Anterior cruciate ligament and

8. Posterior cruciate ligament

These are very thick and strong fibrous bands, which act as direct bands of union between tibia and femur to maintain anteroposterior stability of knee joint. They are named according to the attachment on tibia.

Anterior cruciate ligament begins from anterior part of intercondylar area of tibia, runs upwards, backwards and laterally and is attached to the posterior part of medial surface of lateral condyle of femur. It is taut during extension of knee.

Posterior cruciate ligament begins from the posterior part of intercondylar area of tibia, runs upwards, forwards and medially and is attached to the anterior part of the lateral surface of medial condyle of femur. It is taut during flexion of the knee.

9. Medial and 10. Lateral menisci or semilunar cartilages

The menisci are two fibrocartilaginous discs. They are shaped like crescents. They deeper the articular surfaces of the condyles of the tibia, and partially divide the joint cavity into upper and lower compartments. Flexion and extension of the knee take place in the upper compartment, whereas rotation takes place, in the lower compartment.

Each meniscus has the following

1. Two ends: Both of which are attached to the tibia.
2. Two borders: The outer border is thick, convex and fixed to the fibrous capsule, while the 'inner' border is thin, concave and free.
3. Two surfaces: The upper surface is concave for articulation with the femur. The lower surface is flat and rests on the peripheral 2/3 rd of the tibial condyle. Theperipheral thick part is vascular. The inner part is avascular and is nourished by synovial fluid.

The medial meniscus is nearly semicircular, being wider behind than in front. The posterior fibres of the anterior end are continuous with the transverse ligament. Its peripheral margin is adherent to the deep part of the tibial collateral ligament. The lateral meniscus is nearly circular. The posterior end of the meniscus is attached to the femur through two meniscofemoral ligament. The tendon of the popliteus and the capsule separate this meniscus from the fibular collateral ligament. The more medial part of the tendon of the popliteus is attached to the lateral meniscus. The

mobility of the posterior end of this meniscus is controlled by the popliteus and by the two meniscofemoral ligaments.

Functions of menisci

1. They help in making the articular surfaces more congruent. Because of their flexibility they can adapt their contour to the varying curvature of the different part of the femoral condyles, as the latter glide over the tibia.
2. The menisci serve as shock absorbers.
3. They help in lubricating the joint cavity
4. Because of their nerve supply, they also have a sensory function. They give rise to proprioceptive impulses.

11. Transverse ligament

It connects the anterior ends of the medial and lateral menisci Bursae around the knee As many as 13 bursae have been described around the knee-four anterior, four lateral and five medial.

These bursae are as follows:

Anterior

1. Subcutaneous prepatellar bursa
2. Subcutaneous infrapatellar bursa
3. Deep infrapatellar bursa
4. Suprapatellar bursa

Lateral

1. A bursa deep to the lateral head of the gastrocnemius.
2. A bursa between the fibular collateral ligament and the biceps femoris.
3. A bursa between the fibular collateral ligament and the tendon of the popliteus.
4. A bursa between the tendon of the popliteus and the lateral condyle of the tibia.

Medial

1. A bursa deep to the medial head of the gastrocnemius.
2. The anserine bursa is a complicated bursa which separates the tendons of the sartorius, the gracilis and the semitendinosus from one another, from the tibia and from the tibial collateral ligaments.

3. A bursa deep to the tibial collateral ligament.
4. A bursa deep to the semimembranosus.
5. Occasionally a bursa is present between the tendons of the semimembranosus and the semitendinosus.

Blood supply

The femoral artery and the popliteal artery help form the arterial network or plexus, surrounding the knee joint. There are six main branches.

- Two superior genicular arteries
- Two inferior genicular arteries
- The decending genicular artery
- The recurrent branch of anterior tibial artery.

Nerve supply

1. Femoral nerve, through its branches to the vasti, especially the vastus medialis.
2. Sciatica nerve through the genicular branches of the tibial and common peroneal nerves.
3. Obturator nerve, through its posterior division.

Movements of the knee joint

Active movements at the knee are flexion, extension, medial rotation and lateral rotation.

Flexion and extension are the chief movements, these take place in the upper compartment of the joint, above the menisci. They differ from the ordinary hinge movements in two ways.

1. The transverse axis around which these two movements take place is not fixed. During extension, the axis moves forwards and upwards, and in the reverse direction during flexion.
2. These movements are invariably accompanied by rotations or conjunct rotation. Medial rotation of the femur occurs during the last 30 degrees if extension and lateral rotation of the femur occurs during the initial stages of flexion. When the foot is off the ground, the tibia rotates instead of the femur, in the opposite direction.

Rotatory movements at the knee are of a small range. Rotations take place around a vertical axis, and are permitted in the lower compartment of the joint, below the menisci. Rotatory movements may be combined with flexion and extension or conjunct rotations or may occur independently in a partially flexed knee, or adjunct rotations. The conjunct rotations are of value in locking and unlocking of the knee.

Osteoarthritis

Osteoarthritis is the most common form of arthritis. It is strongly associated with ageing and is a major cause of pain and disability in older people.

It is defined as a degenerative, non-inflammatory joint disease characterised by destruction of articular cartilage and formation of new bone at the joint surfaces and margins.

Kellgren (1961) preferred the title 'osteoarthrosis' since there is no evidence of synovial thickening or inflammatory infiltration in the uncomplicated condition. He emphasized that there is a different expression of this disease by the male and the female, and this may result from inherited metabolic abnormalities as well as dietary and other environmental factors.

kellgren described a familial form of osteoarthritis, affecting multiple joints in association with Heberden's nodes, and called it 'primary generalized osteoarthritis'. Primary osteoarthrosis occurs in joints without any previous pathology or any predisposing cause.

Aetiological factors in osteoarthritis

Age

This is probably the most consistently associated factor with generalized and nodular specific osteoarthritis. The peak incidence of osteoarthritis is 45 years in the interphalangeal joints and first carpometacarpal and that occurs later in the knee and latest in the hip.

The cervical spine is probably the most commonly affected area in the over 75 age group with the lumbar spine next.

Gender

The crude prevalence of osteoarthritis is the same in both sexes, but in females more joints are affected. Five or more joint groups were affected in 9% of males and 12% of females.

At ages above 45 years osteoarthritis appears slightly more frequently in men and involves one or more joints. At ages greater than 55 years osteoarthritis is more frequent in women and involves multiple joints. It has been shown that osteoarthritis in postmenopausal women was associated with higher body weight, higher subcutaneous fat and strong muscles linked to hormonal deficincies.

Socioeconomic groups

In moles in the monarticular form associated with trauma there is a gradient between social class and osteoarthritis.

Occupation

Occupations with physical activity involve repetitive use of particular joints over long periods of time. Sports ethusiasts and professional atheletes may be conditioned so that their muscles protect their joints, but the manual labourer, factor worker or docker may continue to use the joints even after muscular exhaustion.

Obesity

Obesity has been associated with increased bone mass. The major cause of osteoarthritis is the failure of subchondral bone to deform with an impact load, leading to increased cartilage damage. if this is true then disorders where bone is stiffer than normal would be associated with higher prevalence of osteoarthritis and patients with osteoarthritis would have a higher bone masses than normal.

Metabolic factors

There has been some evidence for a link between diabetes and osteoarthritis, possibly through elevated growth hormone levels that alter cartilage metabolism and increase bone density. Hyperuricaemia has been found more frequently in people with generalized osteoarthritis.

Mechanical factors

It has been considered that mechanical stress such as single impact stress, gross anatomical damage, subtle mechanical derangement (eg. longstanding internal derangement of the knee), joint hypermobility and repeated impacts, has been associated with osteoarthritis but other factors are also operating. Indeed direct articular cartilage damage is not sole source of change.

Developmental factors

A substantial proportion of osteoarthritis of the hip may be accounted for by developmental diseases of the hip. The three major developmental abnormalities are

1. Congenital dislocation of the hip
2. Perthe's disease
3. Slipped femoral epiphysis.

Genetic influence

In certain subsets of osteoarthritis there is a hereditary factor present. This is particularly the case with heberden's nodes which are twice as frequent in first-degree relatives to females with the nodes. A familial trait has also been noted in generalized osteoarthritis associated with Heberden's nodes.

Pathology

The primary lesion consists of degeneration of the hyaline cartilage. As a result the cartilage is easily and rapidly ended until ultimately the bone matrix is exposed. The erosion of the cartilage is not uniform, so relatively at first areas of bone are exposed in a patchy fashion and there are intervening islands of relatively normal cartilage. The perichondrium and the cartilage round the periphery of the joint are stimulated into activity, and as a result, the non-articular areas of the bones are elevated above the remainder of the surface, and project cirucumferentially to give the appearance known as 'lipping. In addition, irregular outgrowths appear in this area, at first cartilaginous but eventually becoming ossified to form osteophytes.

There is a synovitis with fibrosis involving the capsule and subsynovial connective tissues. There is also a reaction to the presence of cartilage debris shed from the joint surface and absorbed between the surface layers of the synovial membrane.

Harrison (1953) showed that in osteoarthritis there is proliferation of blood vessels and probably an increase in blood supply to the subchondral bone with thinning of cartilage over the pressure areas, but proliferation of cartilage where there is no pressure. This degenrates and is invaded by larger blood vessels and finally replaced by bone. Venous engorgement with increased pressure in segments of osteoarthritic femoral heads has been reported.

Johnson (1959) described that in the formation of subchondral cysts in osteoarthritis there is initially an oedema in the subchondral marrow, which is followed by the formation of a mucinous fatty marrow and dilatation of surrounding sinusoids. There is a mucoid secretion within the centre of this area and the expansion of the cyst cavities by osteoclastic resorption of bony trabecule. Surrounding there is some osteoblastic response and a sclerotic wall is formed. Other theories are that these cyst arise from herniation of synovial fluid through cracks within the denuded subchordrial bone plate.

Johnson believed that the osteophytic lipping may be due to outward cartilage growth followed by ossification and local periosteal new bone formation, particularly around the capsular attachments.

The synovial membrane and capsule are involved in the lateral stage, and are the site of inflammation and adhesions. The synovial tags or polypi are insinuated into the joint, and when very exuberant the process is refeued to as 'lipoma arborescens'. Ocassionally, cartilage formation occurs in these tags and they are then liable to the broken off into the joint, when they form loose bodies. The exposed bone ends of the articular surface are subjected to considerable friction, in consequence the bone trabaeculae in the immediate neighbourhood fracture and repair and the marrow spaces are obliterated. The change involves only a thin layer abutting on the joint, and when the surface of this layer gradually becomes more and more smooth and polished as a result of the continual rubbing, the process is known as as ehurnation.

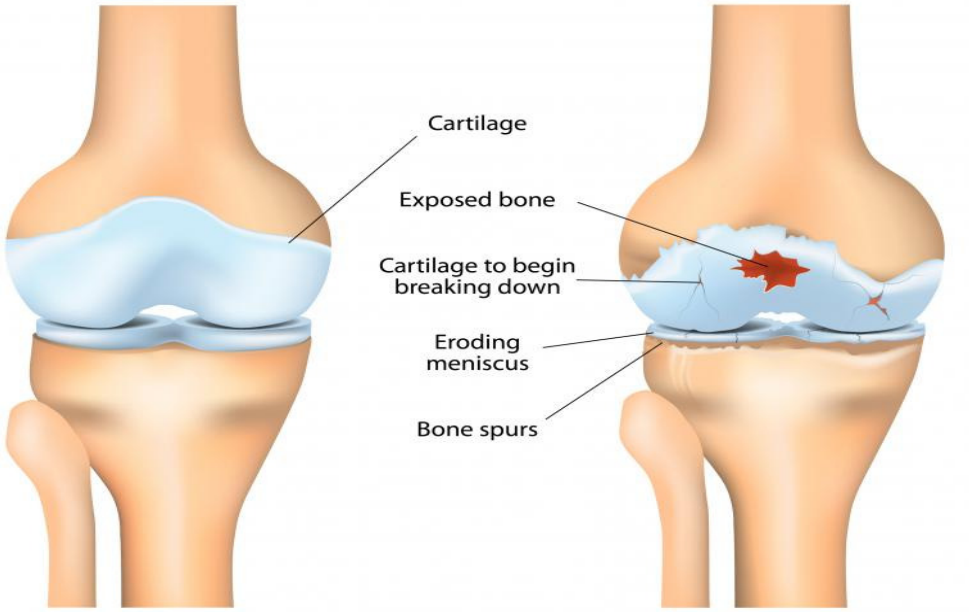
An osteoarthritic joint rarely, if ever, becomes completely ankylosed, in contrast to the rheumatoid in which ankylosis is frequent.

Clinical features

The main symptom is pain, causing loss of ability and often stiffness. "Pain" is generally described as a sharp ache or a burning sensation in the association muscles and tendons and is typically made worse by prolonged activity and relieved by rest.

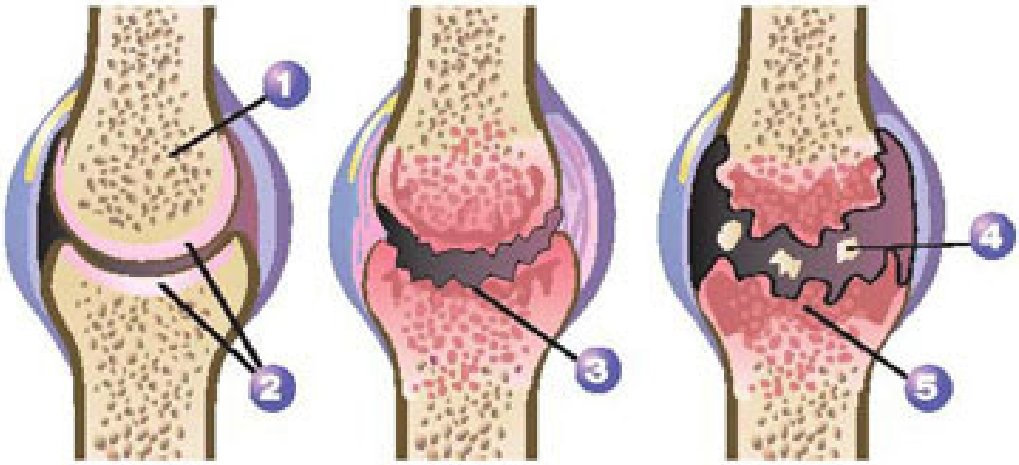
Stiffness is most common in the morning, and typically lasts less that thirty minutes after beginning daily activities, but may return after periods of inactivity.

OSTEOARTHRITIS



Healthy joint **Osteoarthritis**

Evolution of Osteoarthritis



1. *Bone*
2. *Cartilage*
3. *Thinning of cartilage*
4. *Cartilage remnants*
5. *Destruction of cartilage*

Osteoarthritis can cause a crackling noise called “crepitus” when the affected joint is moved or touched and people may experience muscle spasms and contractions in the tendons. Ocasionally, the joints may also be filled with fluid.

Osteoarthritis commonly affects the hands, feet, spine and the large weight bearing joints such as the hips and knees. As osteoarthritis progresses, movement patterns (such as gait) are typically affected. Osteoarthritis is most common cause of a joint effusion of the knee.

In smaller joints, such as the fingers, hard bony enlargements, called Heberden’s nodes on the distal interphalangeal joints and/or Bouchard’s nodes on the proximal interphalangeal joints, may form, and though they are not necessarily painful, they do limit the movement of the fingers significantly.

OSTEOARTHIRIS OF KNEE:

In osteoarthiristis of the knee major problems are pain , stiffness , Instabilty , Deformity and Functional inadequacy

1. Pain :- Pain is assessed for its character degree, posture and duration pain in OA usually noticed when the degenerated it is exposed to compressive forces , hyper vascularisation of the neighboring bone.
2. Tenderness and effusion :- The site and degree recorded
3. Range of Movements:- passive ROM inclueding the end – feel is recorded .
4. Deformity :- It is nature and extent are assed at HIP ,Knee , Ankle & foot during total weight bearing.
5. Stability :- The it is Assessed in supine & with weight bearing affected knee alone.Strengh, endurance & Hamstrings , Glutei should be recorded.

Differential diagnosis

A number of conditions may mimic OA some are.

I. Rheumatoid arthritis

It is an autoimmune disease. Pain, stiffness and swelling in miner and major may herald the onset of rheumatoid disease Morning stiffness more than 1 hour x-rays show an erosive arthritis with minimal or no osteophytes.

II. Psoriatic arthritis

It is a long term inflammatory arthritis that occurs in people affected by the autoimmune disease. Swelling of entire fingers and toes with a sausage like

appearance. small depressions in the nail(pitting), thickening of the nails and detachment of the nail from the nailbed. It is a seronegative arthritis.

III. Bursitis

It is the inflammation of one or more bursae of synovial fluid in the body. It commonly affects superficial bursae. Joint , warmth, erythema and stiffness around the inflamed bursae.

Examination of knee

The examination includes

- Position
- Inspection
- Palpation
- Motion

The latter three steps are often remembered with saying look, feel, move.

Position

Position for most of the exam the patient should be supine and the bed or examination table should be flat. The patient's hands should remain at his or her sides with the head resting on a pillow. The knees and hips should be in the anatomical position.

Inspection

Inspection done while the patient is standing

The knee should be examined for

Baker's cyst

- Genu recurvatum
- Valgus deformity (Konck-kneed)
- Varus deformity (bow legged)
- Gaid

Inspection done while supine

The knee should be examined for

- Scars
- Lesions
- Signs of trauma/Previous surgery

Masses

Bursae: Housemaid's (prepatellar bursitis)

Clergyman's (Infrapatellar bursitis)

- Bony: Exostosis
- Tumor of Femur (Tibia
- Swelling – Effusion
- Redness
- Muscle bulk and symmetry (in particular atrophy of the vastus medialis)
- Displacement of the patella (knee cap)

Palpation

An inflamed knee exhibits

- Tumor (Swelling)
- Rubor (redness)
- Calor (Heat)
- Dolor (Pain)

Swelling and redness should be evident by inspection.

Temperature change

Using the back of the hand one should feel the temperature of the knee below the patella, over the patella and above the patella. Normally, the patella is cool relative to above and below the knee. A complete exam involves comparing the knees to one another

Joint line tenderness

This is done by flexing the knee and palpating the joint line with the thumb.

- Effusion
- patellofemoral crepitus
- Thickened synovial membrane – Spongy/boggy feel, edge can be rolled.
- Effusion: Fullness of para patellar tendon fossae in flexion.

Bulge sign:

Useful for small effusions

Patellar tap:

Useful for large effusions slide your hand down the patients thigh, pushing down over the suprapatellar pouch, on reaching the upper pole of patella, keep your hand there and maintain pressure.

Using the index and middle finger of the other hand push the patella down gently. If it bounce then positive.

Ballotment

It is defined as a palpatory technique for detecting or examining a floating object in the body.

Patellar Instability

- Measure Q angle, angle betwen a line from ASIS to center of patella and center of patella to tibial tuberosity.
- Dynamic patellar tracking in sitting- (Positive J sign-lateral subluxation of patella in full extension).
- Active patellar tracking with knee extended – normal patella moves more superiorly than laterally.

If more lateral movements- abnormal.

- Apprehension test, knee in 20°-30° flexion.
- Manually subluxate patella laterally
- Pain and resistance for lateral motion positive test.

Motion

The patient should be asked to move their knee. Fully range of motion is 0-135°. If the patient has full range of motion and can move the knee passively.

Examination of crepitus - Clicking of the joint with motion.

Tests for meniscal injury

Joint line tenderness

Medial joint line tenderness medial meniscus tear, lateral joint line tenderness lateral meniscus tear.

McMurray test

Knee acutely flexed foxibly, palpable posteromedial margin of joint + knee external rotation. knee extension + click S/o medial meniscus tear.

Palpable posterolateral margin + internal rotation + knee extension – click s/o lateral meniscus tear.

Negative mcmurry's test doesn't rule out tear.

Apley grinding test

Prone, knee 90°, anterior thigh flexed against table foot and leg pulled upwards/downwards and rotated + joint slowly flexed and extended pain/popping – tear.

LIGAMENT TESTS

1. Anterior drawer test

Tests for anterior cruciate ligament (ACL)

- Supine position
- Hip 45°, knee 90° flexed
- Stabililze the foot
- Ensure tibia is not sagging behind otherwise false positive result.
- Not possible in acute painful knee.

Lachman test

Test for anterior cruciate ligament rupture

- Supine position
- Knee 45° flexion
- Slight external rotation
- Useful in painful knee/door step effect of menisci.

Pivot shift test

Test for anterior cruciate ligament tear

- Patient in supine position, relaxed.
- Hip at 30° abduction knee in IR and valgus strain (Subluxates the knee), do gradual flexion from extension.
- See for the reduction of the lateral femoral condyle.

Sag sign

Test for posterior cruciate ligament

- Knee at 90°
- Support the heel
- Tibia sags visible posteriorly from effect of gravity
- Compare silhouette both side.

Godfrey test

Say sign at 90° flexion at hip and knee.

Posterior drawer test

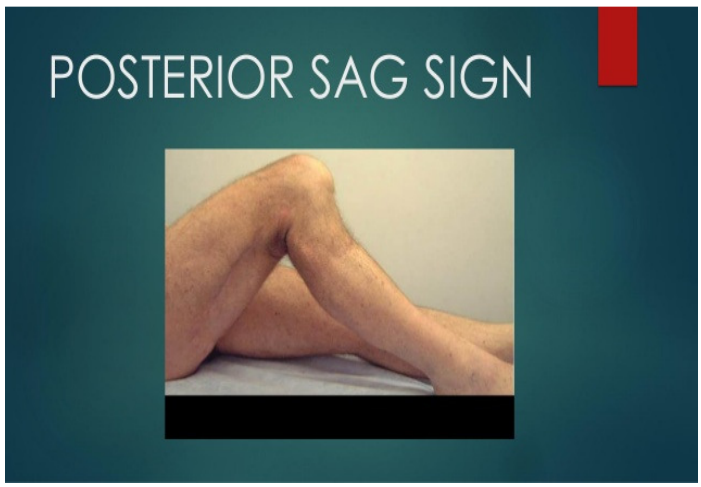
Test for posterior cruciate ligament

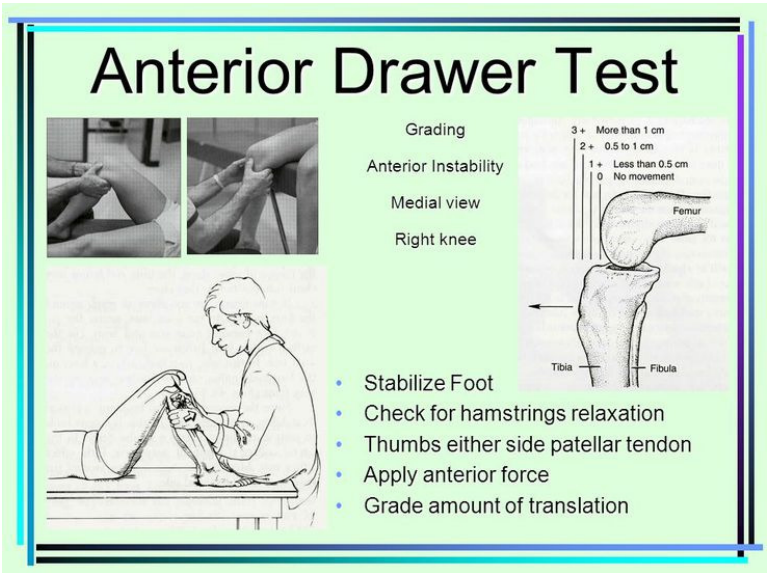
- At supine position
- Knee at 90°
- Excessive posterior laxity/no hard end point felt s/o posterior cruciate ligament tear.

Quadriceps active test

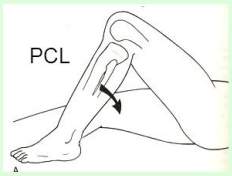
Test for posterior cruciate ligament

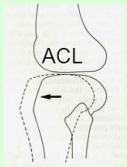
- Patient in supine position
- Knee at 90°
- Active gentle quadriceps contraction to shift tibia without extending knee.
- Anterior shift of tibia – posterior cruciate ligament tear.





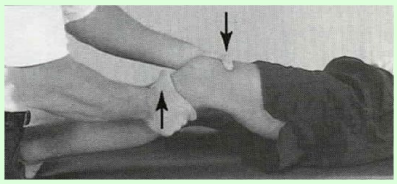
Posterior Drawer Test





- Athlete supine
- Knee flexed 90'
- Foot neutral
- Sit on foot to stabilize it
- Posterior force applied at tibial plateau
- Positive test indicates PCL injury

Lachman's Test



- Better test than Anterior Drawer
- Takes opposition of hamstrings out of play
- Knee flexed 15 º - 30º
- Stabilize femur
- Apply anterior force to tibia

University of Wisconsin MEDICAL SCHOOL

University of Wisconsin Department of FAMILY MEDICINE

Valgus Stress Test for MCL*

Valgus stress test

Test for medial collateral ligament

- At supine position
- Side of table
- Abducted of the side of table
- Knee flexion at 30°
- Valgus strain
- External rotation
- Observe stability

Varus stress test

Test for lateral collateral ligament

- Varus strain given similarly at 30° flexion
- Observe instability
- Palpate lateral collateral ligament
- If LCL turn not palpable

Posterolateral corner Injury (PLC)

- External rotation recurvatum test
- Dial test : External rotation of tibia is compared at 30° to 90° flexion
- More than 10° increased – Positive
- Reverse pivot shift test.

Citeria and classification of OA Knee

(American college of Rheumatology – ACR)

Clinical

- Knee pain for most days of prior month
- Crepitus on active joint motion.
- Morning stiffness equal and more than 30mins in duaration
- Age equal to more than 38 years.
- Bony enlargement of the knee on examination.

Clinical and radiological

- Knee pain for most days of the prior month.
- Osteophytes at joint margins.
- Synovial fluid typical of OA knee.
- Age - 40years
- Morning stiffness equal and not more than 30 mins.
- Crepitus on active joint motion.

Investigations

Laboratory investigations are usually within normal limits.

Radiological examination of the knee joint is the most important diagnostic tool.

- The following are the radiological features seen in osteoarthritis of the knee.
- Loss of joint space (due to destruction of articular cartilage).
- Sclerosis (due to increase cellularity and bone deposition)
- Subchondral cysts (due to synovial) fluid intrusion into the bone).
- Osteophytes (due to revascularization of remaining cartilage and capsular traction).
- Bony collapse (due to compression of weakened bone)
- Loose bodies (due to fragmentation of osteochondral surface)
- Deformity and lalalignment (due to destruction of capsules and ligaments).

Kellegren and lawrence

Radiological grading

Grade I	:	Doubtful narrowing of joint space and possible osteophyte lipping.
Grade II	:	Definite osteophytes and possible narrowing of the joint space.

Grade III	:	Moderate multiple osteophytes, definite narrowing of joint space and some sclerosis and possible deformity of the bone ends.
Grade IV	:	Large osteophytes, marked narrowing of joint space, severe sclerosis and definite deformity of the bone ends.

Pitfalls of X-rays in OA knee

- Not reliable in about 15% of the cases
- Weight bearing AP and lateral views are desired
- Only 40% of the people with severe X-ray changes experience pain.

Radiological classification of OA knee (Ahibach)

AP weight bearing and lateral views

Type I	:	Joint space narrowing
Type II	:	Total loss of joint space
Type III	:	<5mm tibial erosion but posterior part of the plateau intact.
Type IV	:	>5mm tibial erosion and erosion of posterior plateau
Type V	:	Subluxation

Other investigations

Arthroscopic examination

This allows direct inspection and visualization of the damaged joint surfaces/

- Synovial fluid analysis shows non-inflammatory picture.
- Bone scan shows increased uptake of technetium – 99m
- MRI, CT scan also helps to diagnose, subchondral cysts, osteophytes etc.

Treatment

Before beginning the treatment, the diagnosis of OA is a must.

- ACR diagnostic criteria for OA knee to be followed.

Aims of treatment of OA Knee

It can be best illustrated by 4R's

- Relieve pain
- Restore function
- Reduce disability if any
- Rehabilitation.

Methods of treatment

The following therapeutic measures are

1. Drugs

Analgesics and anti infalmmatory drugs

If symptoms do not respond to non-pharmacological measuers, paracetamol should be given.

- Addition of a topical NSAID, and then capsaicin.
- Opiates may occasionally be required.
- For temporary benefit of moderate to severe pain, intra-articular injects of cortico steroids.

2. Local physical therapies

Heat or cold can sometimes give temporary relilef.

- Acupuncture and transurtaneous electrical nerve stimulation (TENS) have also been effective in knee OA.
- Antineuropathic drugs such as amitriptyline, gabapentin and pregabolin.

3. Corticosteroid injections

Intra-articular corticosteroid injections are effective in the treatment of knee OA and are also used from symptomatic relief in the treatment of OA at the first CMC joint.

Trial of serial corticosteroid injections every 3 months in knee OA have shown efficacy for up to 1 year.

4. Chondroitin and glucosamine

Chondroitin sulphate and glucosamine sulphate have been used alone in combination for the treatment of knee OA.

5. Hyaluronan injections

In knee OA, intra-articular injection of one of several forms of hyaluronan usually given as a course of weekly injections for 3-5 weeks, may give modest pain relief for several months.

6. Surgical treatment

In selected cases, surgery can provide significant relief following are some of the surgical procedures.

Osteotomy

Osteotumy near a joint has been known to bring about relief in symptoms, especially in arthritic joints with deformities.

A high tibial osteotomy of OA of the knee with genu varum and inter-trochanteric osteotomy for OA.

Joint replacement

For cases crippled with advanced damage to the joint, total joint replacement operation has provided remarkable rehabilitation.

Joint debridement

In this, the affected joint is opened, degenerated cartilage smoothened and osteophytes and the hypertrophied synovium excised.

Arthroscopic procedure

Arthroscopic removal of loose bodies, degenerated meniscal tears and other such procedures have become popular because of their less invasive in nature.

COMPLICATION:

Possible complications of osteoarthritis include: Rapid, complete breakdown of cartilage resulting in loose tissue material in the joint (chondrolysis).Bone death (osteonecrosis).Stress fractures (hairline crack in the bone that develops gradually in response to repeated injury or stress).Bleeding inside the joint.Infection in the joint.Deterioration or rupture of the tendons and ligaments around the joint, leading to loss of stability.Pinched nerve (in osteoarthritis of the spine).

4. MATERIALS AND METHODS

Phase II clinical observation criteria based study to evaluate the clinical efficacy of siddha diherbal formulation of ERANDAMOOLA CHOORANAM (Internal) KUNGILIA THYLAM(EXTERNAL) PATTRU[external therapy]for the treatment of AZHAL KEEL VAYU (OSTEO ARTHERITIS). was carried out at post graduate department of Sirappu maruthuvam, GOVT. Siddha medical college hospital palayamkottai under the observation and guidance of the head of the department. In this study 20 cases were admitted in IN patient ward and other 20 cases were seen in OUT patient ward .

Selection of the patients

Age : 30 – 60 yrs

Sex : Both Male and Female

Clinical findings

Inclusion criteria

The patients were selected on the basis of the following clinical findings.

- Patients having symptoms of joint pain in one or both knee joints, swelling, tenderness, stiffness, crepitation, restricted movements of joints.
- Patients who are willing to give blood samples for laboratory investigation.
- Patients who are willing to take radiological imaging before and after treatment.
- Patients who are willing to participate in this study with the knowledge of potential risks.

EXCLUSION CRITERIA:

- Cardiac disease
- Rheumatoid arthritis
- Use of narcotic drugs
- Pregnancy and lactation
- History of trauma
- Patient with any other serious illness.
- Benign and malignant neoplasm

- Immuno compromised Patients
- Children, elderly
- Clinically significant abnormal laboratory values.

WITHDRAWAL CRITERIA:

- Intolerance to the drug and development of adverse reactions during drug trial.
- Poor patient compliance & defaulters.
- Patient turned unwilling to continue in the course of clinical trial.
- Occurrence of any serious illness.

The detailed history was taken from the patient about

- Occupation
- Socio economic status
- Diet and habits

TESTS AND ASSESSMENTS:

A. Clinical assessment

B. Routine investigations

C. Radiological investigations

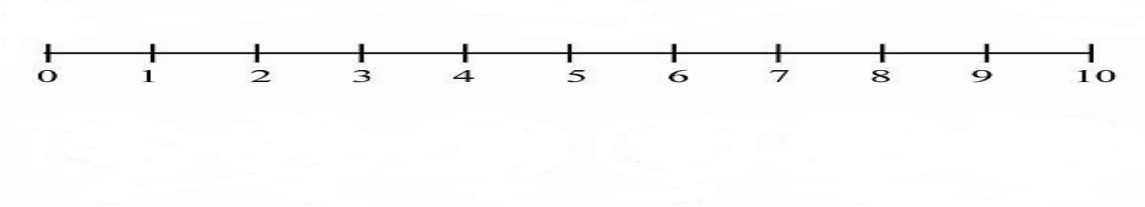
A. CLINICAL ASSESSMENT:

- Pain and swelling in both knee joints
- Stiffness in both knee joints
- Crepitus
- Tenderness
- Warmth
- Restricted movements of both the knee joints

IMPROVEMENT ASSESSED BY FOLLOWING ASSESSMENTS

1. Pain assessment scale
2. Restricted movement assessment scale

UNIVERSAL PAIN ASSESSMENT SCALE



A. 0 : No Pain

B. 1 -3 : Mild pain

C. 4-6 : Moderate pain

D. 7-10 : Severe pain

- Reference: Clinical Manual for Nursing Practice. (National Institute of Health Warren Grant Magnuson Clinical Center)

RESTRICTED MOVEMENT ASSESSMENT SCALE:

GRADATION OF MOVEMENTS:

- G 1 – Fit for all activities, do their work without support.
- G II – Mild pain present in knee joint, mild restricted movements.
- G III –Moderate Pain present in knee joint, moderate restricted movements, need some assistance to perform.
- G IV – Severe pain, bed ridden.

Diagnosis

The diagnosis was made by following siddha diagnostic methods kaalam, poriaridhal, pulanaridhal, udalthathukkal, Naadi and Envagai Thervugal and the diagnosis of Azhal Keel vayu obtained which correlated with modern diagnosis of osteoarthritis of knee joints by the x-ray findings.

B.ROUTINE INVESTIGATION:

BLOOD:

- Hb
- Total WBC Count
- Differential WBC Count
- Neutrophils
- Lymphocytes

- Eosinophils
- Monocytes
- Basophils
- Total RBC count
- ESR
  - ½ Hr:
  - 1 Hr

- Blood sugar
  1. Randum:
  2. Fasting:
  3. Postprandial:

URINE:

- Albumin
- Sugar
- Deposits

C.RADIOLOGICAL INVESTIGATIONS:

X -Ray of the knee joints (AP and Lat view)

INVESTIGATIONS BASED ON SIDDHA SYSTEM

1. Naa
2. Niram
3. Mozhi
4. Vizhi
5. Malam
6. Moothiram
7. Sparisam
8. Naadi
   - Neikuri
   - Neerkuri

LINE OF TREATMENT:

They day before the internal medicine started, vellai ennai-15ml was given at early morning for purgation to correct the deranged vatham to all the patients.from the second day onwards the trail drugs were administrated.

TREATMENT:

INTERNAL MEDICINE:

"ERANDA MOOLA CHOORANAM"

(Ref:ANUBOGA VAITHYA THEVA RAGASIYAM Page No.425)

Dosage : ¼ to ½ Thola (3 to 6 Gram)(Twice daily)

Adjuvant : water

Duration : 40days

ETERNAL MEDICINE

"KUNGILIA THYLUM"

(Ref:MARUNTHU SEI EYALUM KALAI Page No.160)

Dosage:30ml (for external application)

Standard Operating Procedure for the preparation of **ERANDA MOOLA CHOORANAM.**(Internal.) AND **KUNGILIA THYLAM**(External.)

EXTERNALTHERAPY PATTRU as a complementary therapy for OPD& IPD Patient

All patients were advised to follow the dietary regimens (or) pathiyam.

The Bio-Chemical analysis was done in the Biochemistry Department and Pharmacological analysis was done in the Pharmacological laboratory of AKL college of Pharmacy.

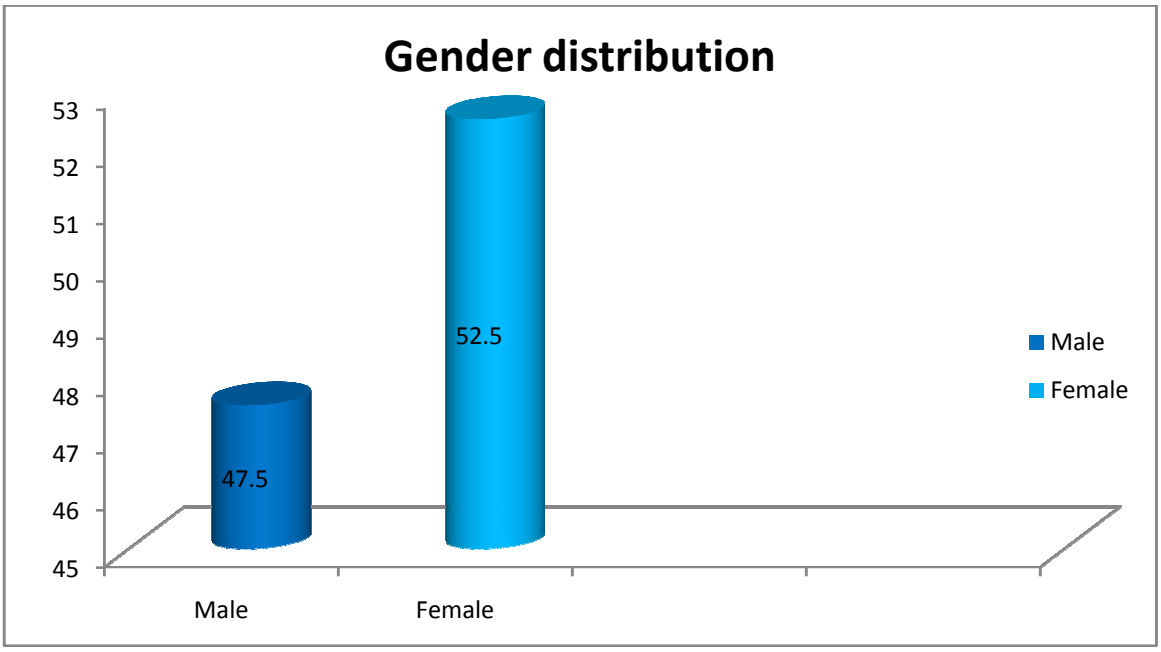
5. RESULTS AND OBSERVATION

1. Gender Distribution
2. Age Distribution
3. Kaalam Distribution
4. Occupational Status
5. Seasonal Variations
6. Thinai
7. Socio-economic Status
8. Dietary habits
9. Precipitating factors
10. Mode of onset
11. Duration of conditions
12. Clinical features
13. Conflict in Kanmethiriam
14. Disturbance in Vatham
15. Disturbance in Pitham
16. Disturbance in Kabam
17. Disturbance in Udal kattugal
18. Envagai Thervugal
19. Naadi
20. Neikuri
21. Selection of patients
22. Assessment of results

1. GENDER DISTRIBUTION

Table : 1

S.No	Gender	No of Cases	Percentage (%)
1	Male	19	47.5
2.	Female	21	52.5
	Total	40	100



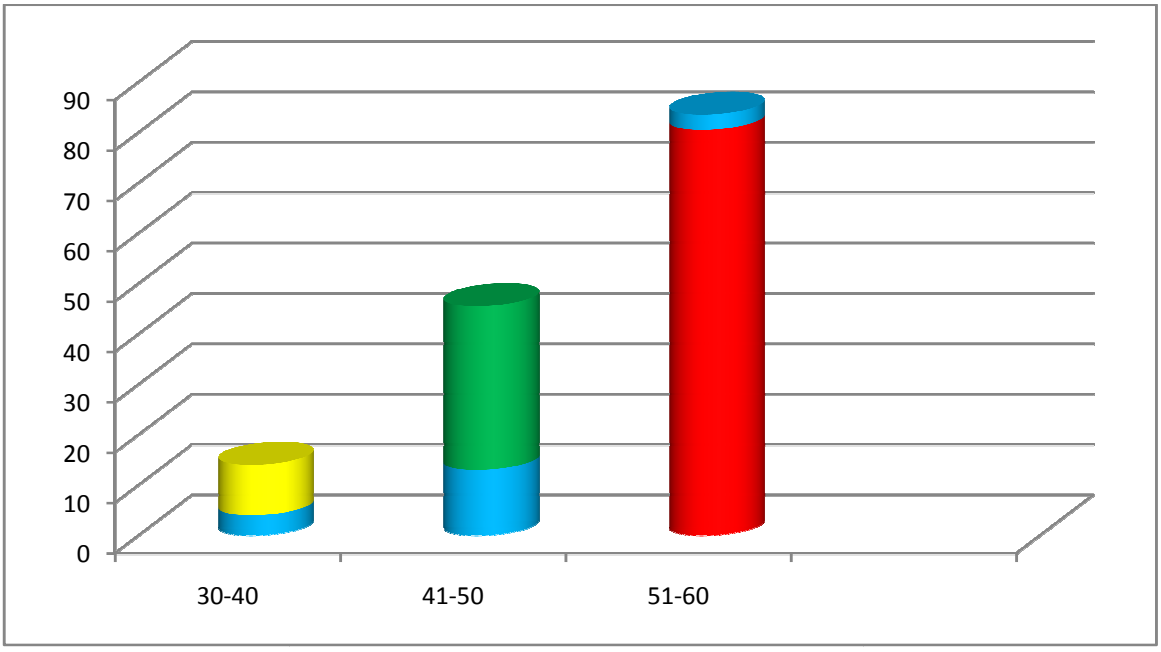
Inference

Among the 40 patients selected for this study 47.5% are male and 52.5% are female.

2. AGE DISTRIBUTION

Table : 2

S.No	Age (years)	No of Cases	Percentage (%)
1	30-40	4	10
2.	41-50	13	32.5
3.	51-60	23	57.5
	Total	40	100



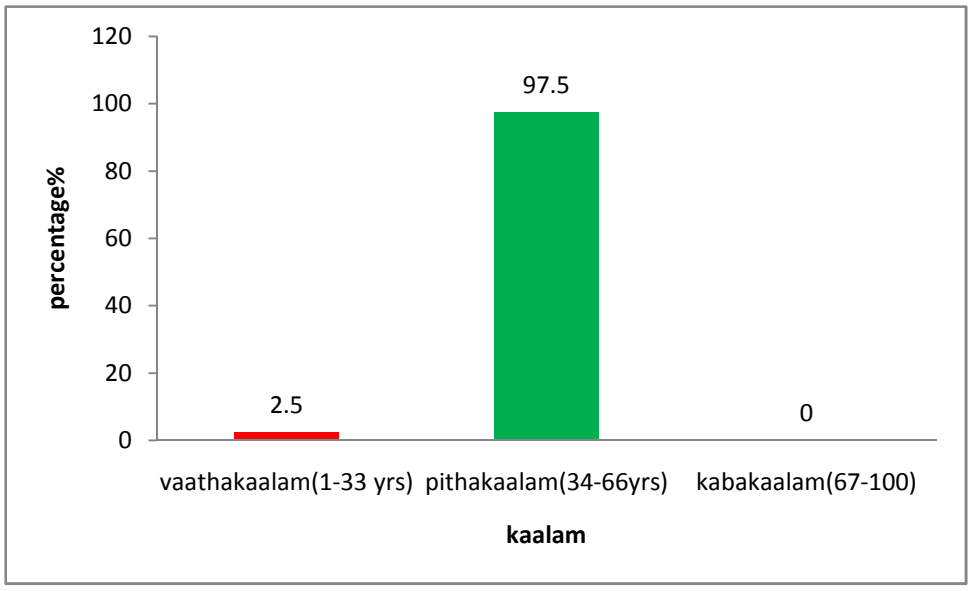
Inference

The prevalence of the diseases is found to be higher in the age group of 51-60 years.

3. KAALAM

Table : 3

S.No	Kaalam	No of Cases	Percentage (%)
1	Vathakaalam (Upto 33 years)	1	2.5
2.	Pithakaalam (33 years to 66	39	97.5
3.	Kabhakaalam (Above 66 years)	0	0
	Total	40	100



Inference

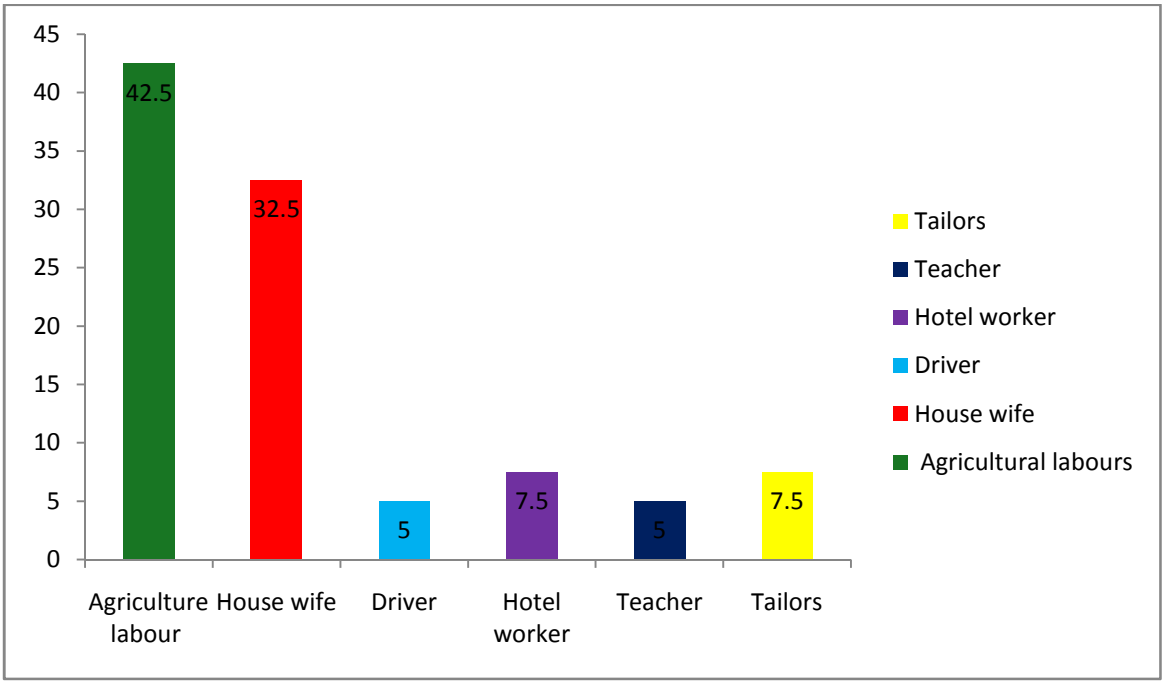
Out of 40 cases, 97.5% of cases were found to be in pithakaalam.

2.5% of cases were found to be in vadhakaalam.

4.OCCUPATION

Table : 4

S.no	Occupation	Number of cases	Percentage
1	Agriculture labours	17	42.5
2	House wife	13	32.5
3	Driver	2	5
4	Hotel worker	3	7.5
5	Teacher	2	5
6	Tailors	3	7.5
	Total	40	100



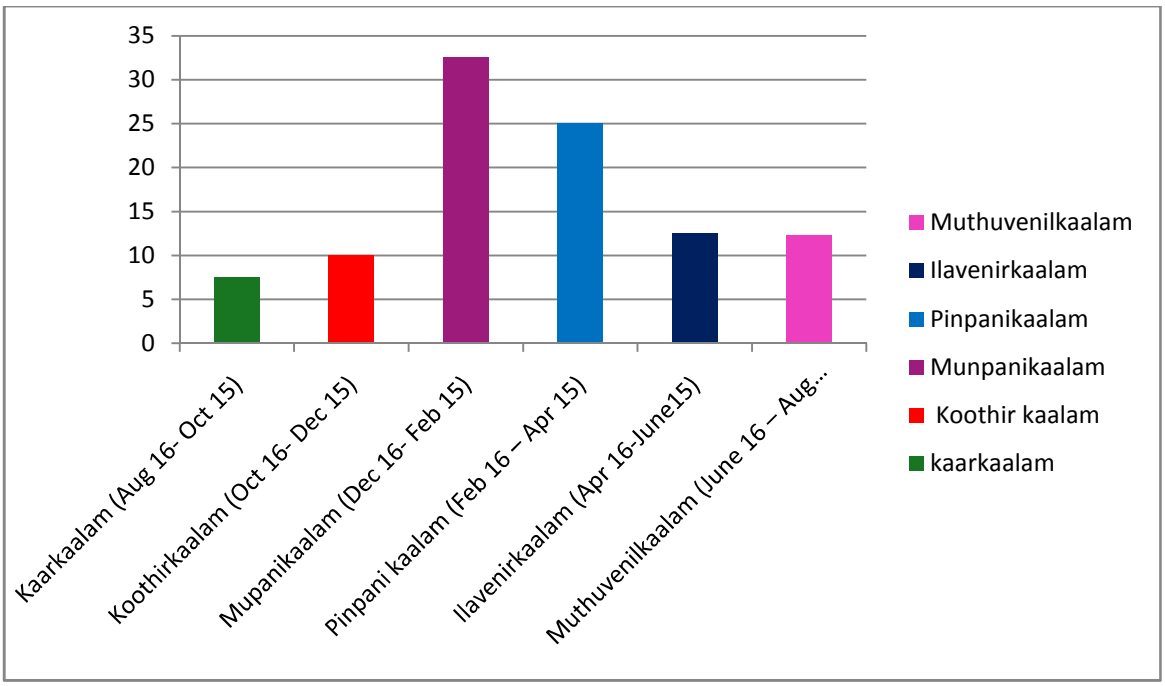
Inference

42.5% agriculatrual labours, 32.5% Housewifes, 5% driver, Hotel workers & Tailors 7.5%, Teacher 5%.

5. SEASONAL VARIATIONS

Table : 5

S.No	Seasons	No of Cases	Percentage (%)
1	Kaarkaalam (Aug 16- Oct 15)	3	7.5
2.	Koothirkaalam (Oct 16- Dec 15)	4	10
3.	Mupanikaalam (Dec 16- Feb 15)	13	32.5
4.	Pinpani kaalam (Feb 16 – Apr 15)	10	25
5.	Ilavenirkaalam (Apr 16-June15)	5	12.5
6.	Muthuvenilkaalam (June 16 –	5	12.5
	Total	40	100



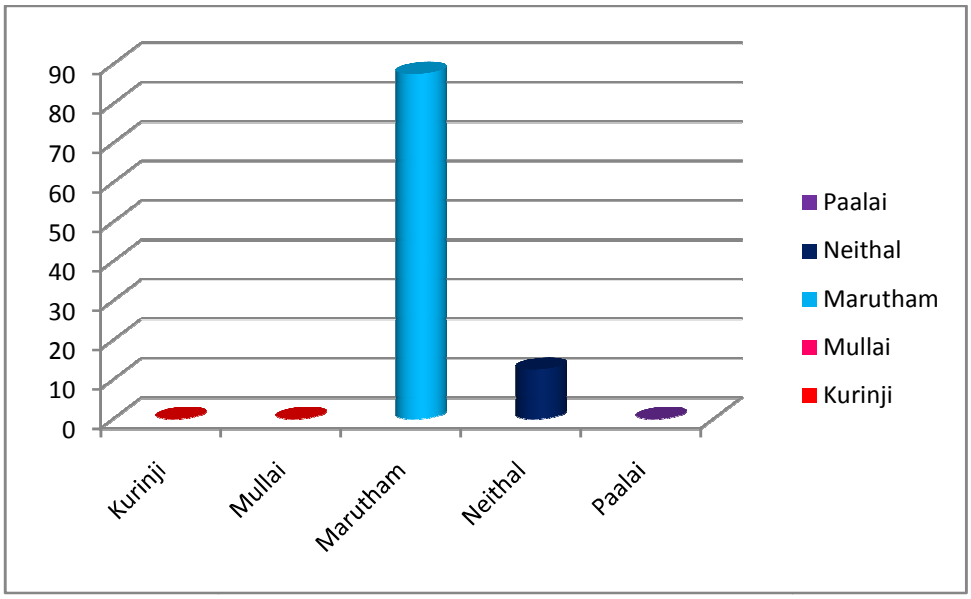
Inference

Out of 40 cases, 3 patients (7.5%) were admitted in Kaarkaalam, 4 patients (10%) were admitted in Koothirkaalam, 13 patients (32.5%) were admitted in Munpanikaalam,.10 (25%) were admitted in Pinpanikaalam, 5(12.5%) were admitted in Ilavenilkaalam, 5(12.5%) were admitted in Muthuvenilkaalam.

6. THINAI

Table : 6

S.No	Seasons	No of Cases	Percentage
1	Kurinji (Hill area)	0	0
2.	Mullai (Forest area)	0	0
3.	Marutham (Fertile area)	35	87.5
4.	Neithal (Coastal area)	5	12.5
5.	Paalai (Desert land)	0	0
	Total	40	100



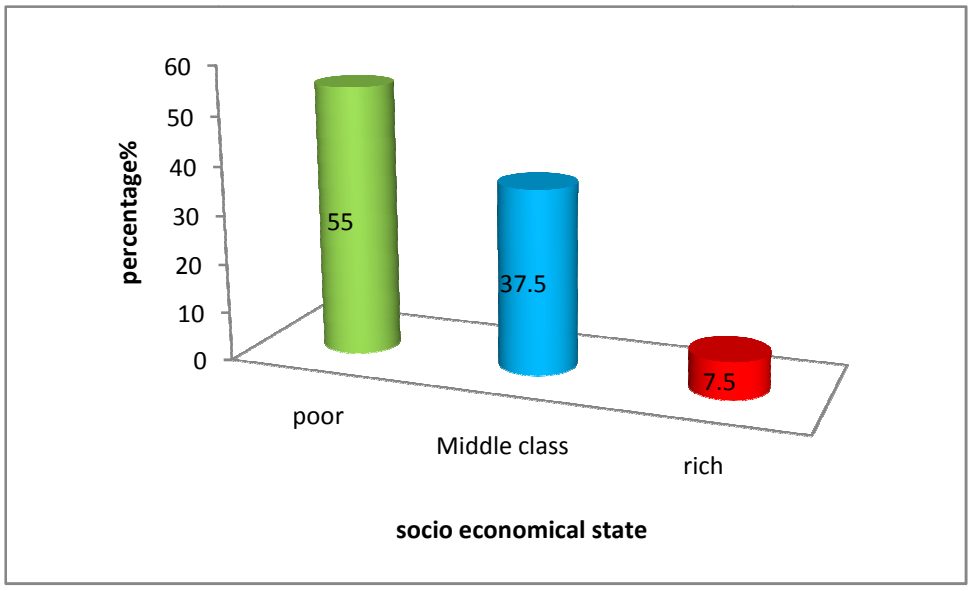
Inference

Among 40 cases, majority were from marutha nilam.

7. SOCIO-ECONOMIC STATUS

Table : 7

S.No	Class	No of Cases	Percentage (%)
1	Rich	3	7.5
2.	Middle - class	15	37.5
3.	Poor	22	55
	Total	40	100



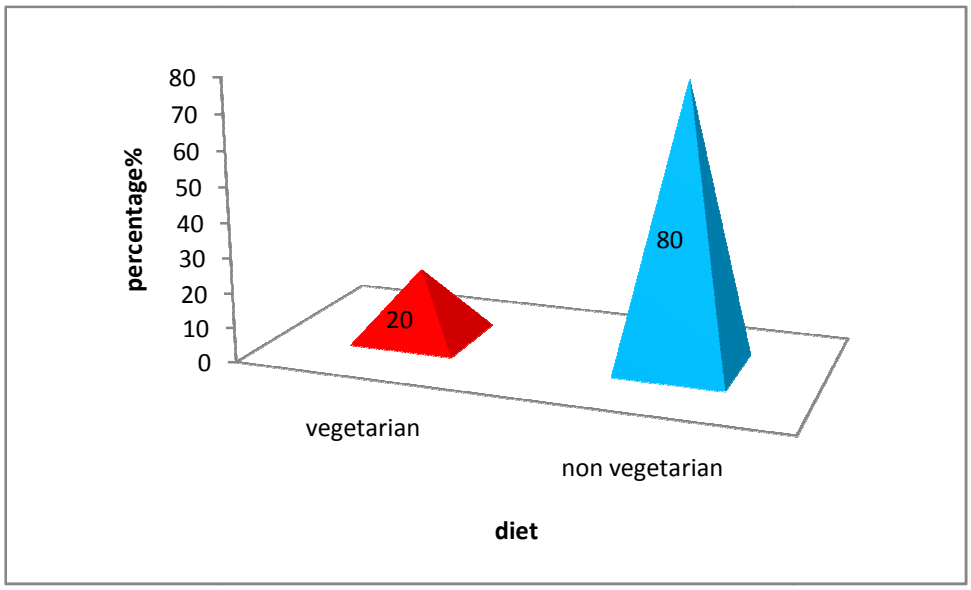
Inference

Out of 40 cases 55% of the cases were from poor socio-economic status, 37.5% cases were from middle class families and only 7.5% from Rich background.

8. DIETARY HABITS

Table : 8

S.No	Dietary	No of Cases	Percentage (%)
1	Vegetarian	8	20
2.	Non-vegetarian	32	80
	Total	40	100



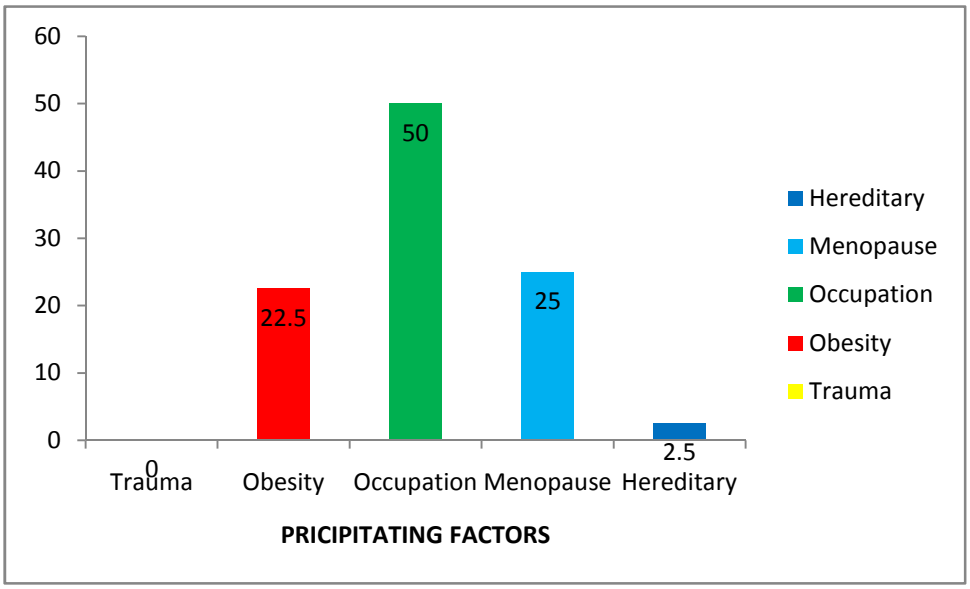
Inference

Most of the cases have non-vegetarian diet habit.

9. PRECIPITATING FACTORS

Table : 9

S.No	Precipitating factors	No of Cases	Percentage
1	Trauma	0	0
2.	Obesity	9	22.5
3.	Occupation related overuse of the joint	20	50
4.	Menopause	10	25
5.	Hereditary	1	2.5
	Total	40	100



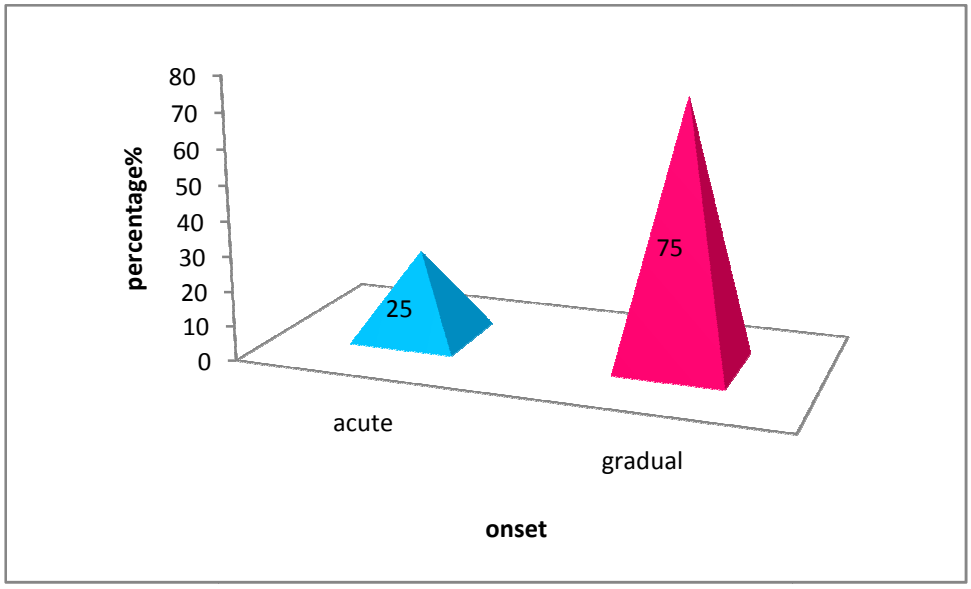
Inference

Among the 40 patients, 10 patients of them (25%) were in the post menopause stage, 20 of them (50%) had history of over use of the joints, 9 of them (22.5%) were obese, and 1 of them (2.5%) were hereditary.

10. MODE OF ONSET

Table : 10

S.No	Mode of onset	No of Cases	Percentage (%)
1	Acute	10	25
2.	Gradual	30	75
	Total	40	100



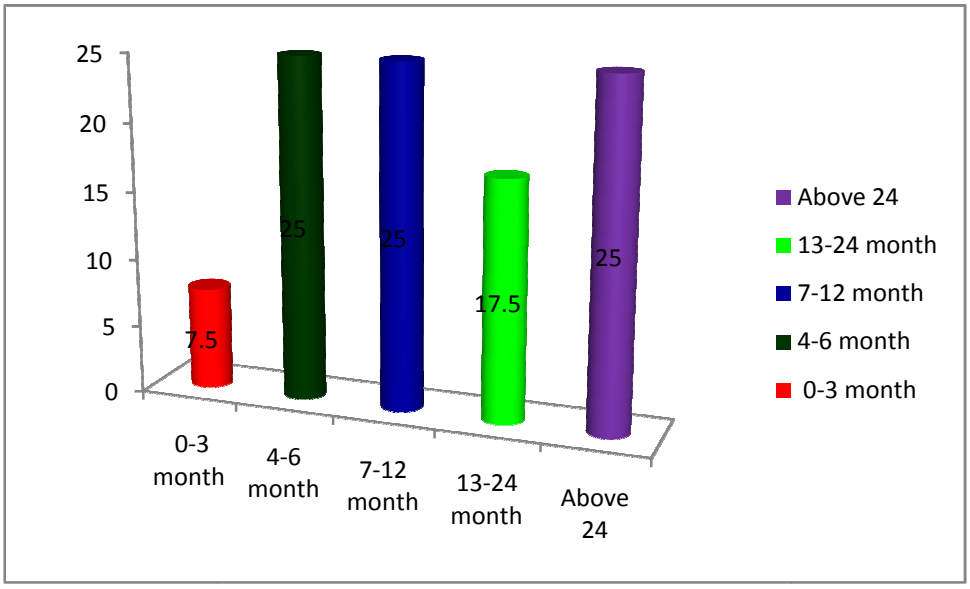
Inference

According to this study 75% of cases were reported gradual onset of disease.

11. DURATION OF CONDITIONS

Table : 11

S.No	Duration (Months)	No of Cases	Percentage (%)
1	0-3	3	7.5
2.	4-6	10	25
3.	7-12	10	25
4.	13-24	7	17.5
5.	Above 24	10	25
	Total	40	100



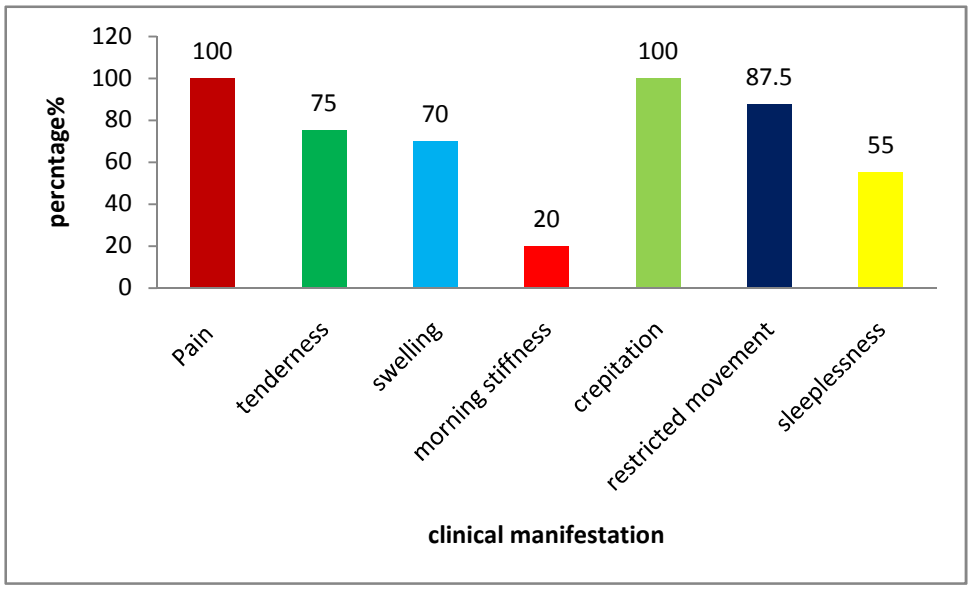
Inference

Among the 40 cases, 3 cases (17.5%) were come under 0-3 months, 10 cases (25)were come under 4-6 months, 10 cases (25%) were come under 7-12 months and 7 cases (15%) were came under 13-24 months. 10 cases (25%) were come beyond 24 month.

12. CLINICAL FEATURES

Table : 12

S.No	Clinical features	No of Cases	Percentage (%)
1	Pain	40	100
2.	Swelling	28	70
3.	Tenderness	30	75
4.	Morning stiffness	8	20
5.	Crepitation	40	100
6.	Deformity	1	2.5
7.	Restricted movements	35	87.5
8.	Sleeplessness	22	55



Inference

Pain, crepitation were found in all 40 cases (100%)

Swelling was found in 28 cases (70%)

Tenderness was found in 30 cases (75%)

Restricted movements was found in 35 cases (87.5%)

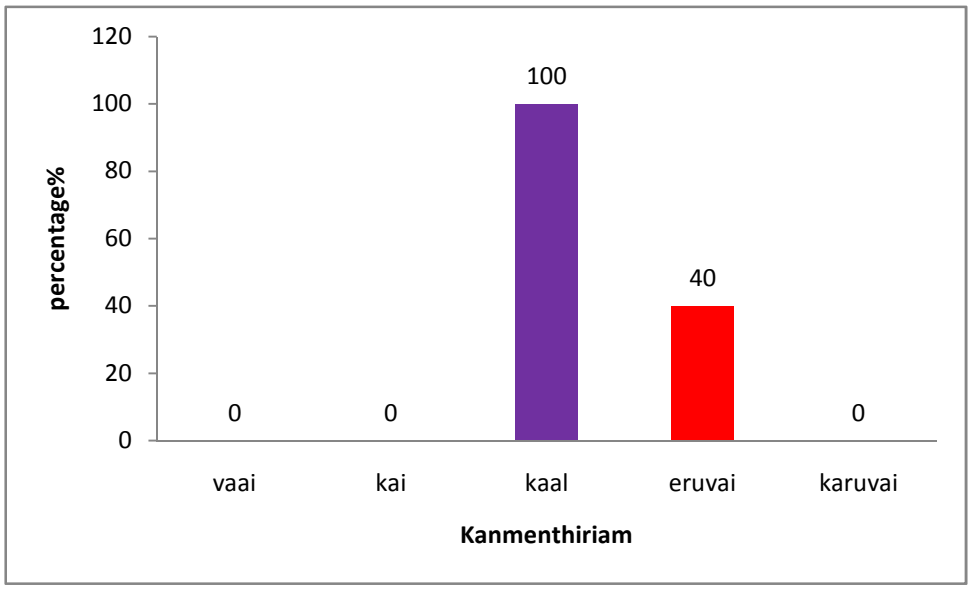
Morning stiffness was found in 8 cases (20%)

Sleeplessness was found in 22 cases (55%).

13. CONFLICT IN KANMENTHIRIAM

Table : 13

S.No	Kanmenthiriam	No of Cases	Percentage (%)
1	Vaai	0	0
2.	Kai	0	0
3.	Kaal	40	100
4.	Eruvai	16	40
5.	Karuvaai	0	0



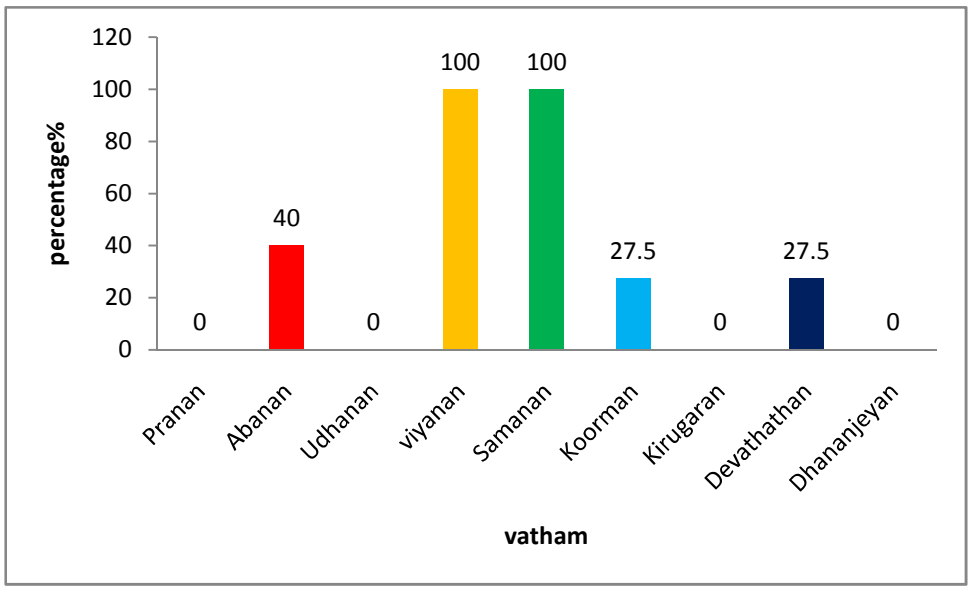
Inference

Among all the kanmenthiriam (Kai, kaal, vai, eruvai, karuvai) kaal was affect in all the 40 cases (100%) and Eruvai was affected in 16 cases (40%).

14. TABLE SHOWING THE DISTURBANCES IN VATHAM

Table : 14

S.No	Vatham	No of Cases	Percentage (%)
1	Pranan	0	0
2.	Abanan	16	40
3.	Udhanan	0	0
4.	Viyanan	40	100
5.	Samanan	40	100
6.	Nagan	0	0
7.	Koorman	0	0
8.	Kirukaran	11	27.5
9.	Devathathan	11	27.5
10.	Dhananjeyan	0	0

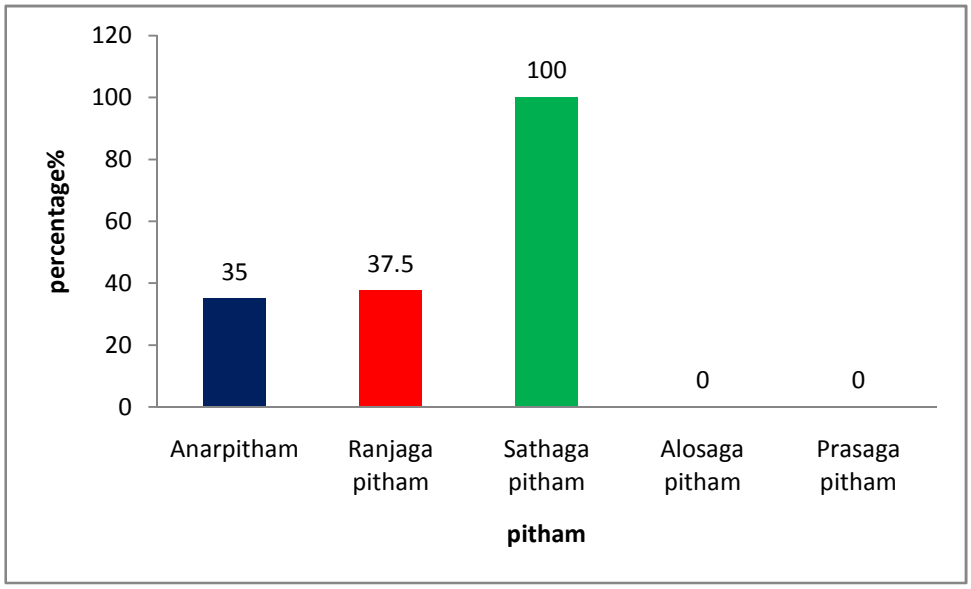


Inference

Viyanan and Samanan were affected in all the 40 cases (100%) Abanan were affected in 16 cases (40%) and Kirukaran and Devathathan affected in 11cases (27.5%).

15. DISTURBANCES IN PITHAM

S.No	Pitham	No of Cases	Percentage (%)
1	Anar pitham	14	35
2.	Ranjaga pitham	15	37.5
3.	Sathaga pitham	40	100
4.	Prasaga pitham	0	0
5.	Alosaga pitham	0	0



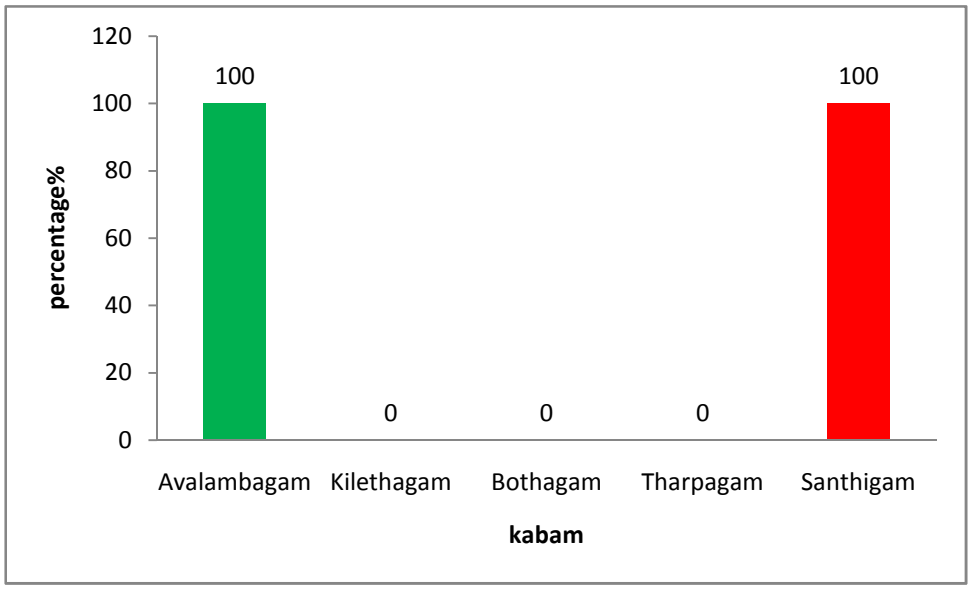
Inference

Sathaga Pitham was affected in all 40 cases (100%), Ranjagapitham was affected in 15 cases (37.5%) Anarpitham was affected in 14 cases (35%).

16. TABLE SHOWING THE DISTURBANCE OF KABAM

Table : 16

S.No	Kabam	No of Cases	Percentage (%)
1	Avalambagam	40	100
2.	Kilethagam	0	0
3.	Bothagam	0	0
4.	Tharpagam	0	0
5.	Santhigam	40	100



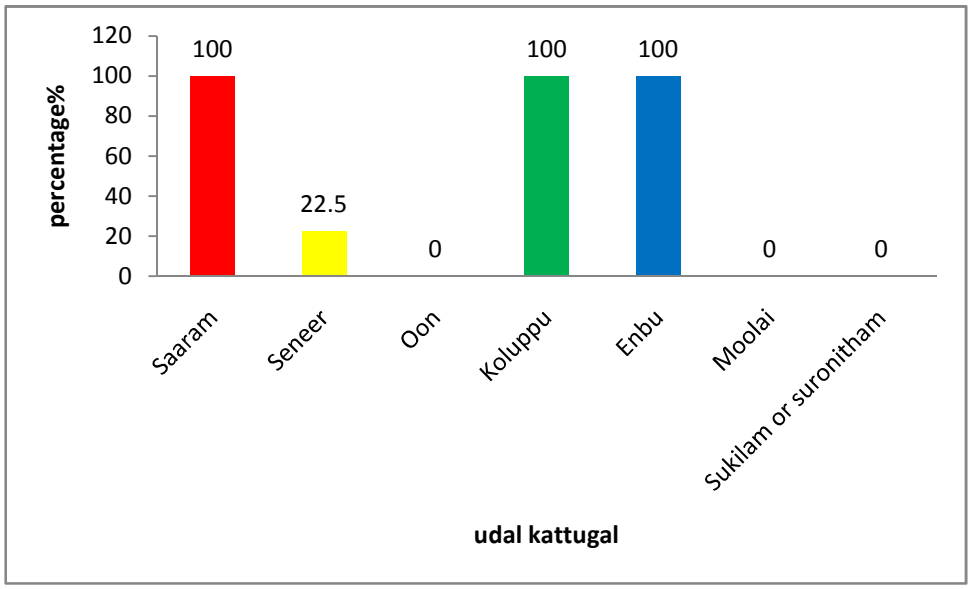
Inference

Among all Santhigam and avalambagam was affected in all 40 cases (100%)

17. DISTURBANCE IN UDAL KATTUGAL

Table : 17

S.No	Udal kattugal	No of Cases	Percentage (%)
1	Saaram	40	100
2.	Seneer	9	22.5
3.	Oon	0	0
4.	Kozhuppu	40	100
5.	Enbu	40	100
6.	Moolai	0	0
7.	Sukilam/suronidham	0	0



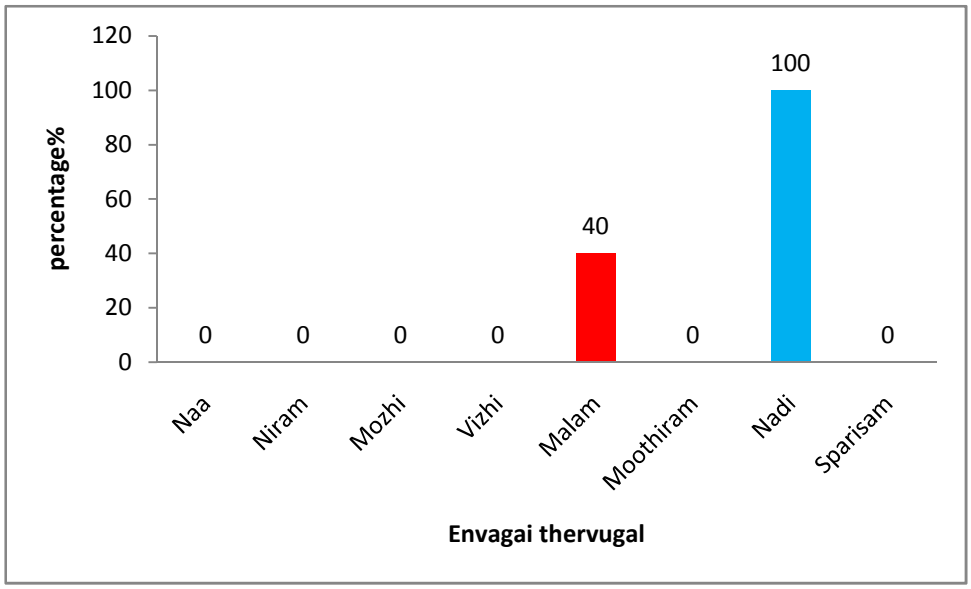
Inference

It was diagnosed, during the study that among the seven udalkattukal saaram, kozhuppu, Enbu were affected in 40 cases (100%) and seneer is affected in 9 cases (22.5%).

18. ENVAGAI THERVUGAL

Table : 18

S.No	Envagai thervugal	No of Cases	Percentage (%)
1	Naa	0	0
2.	Niram	0	0
3.	Mozhi	0	0
4.	Vizhi	0	0
5.	Malam	15	40
6.	Moothiram	0	0
7.	Sparisam	0	0
8.	Naadi	40	100



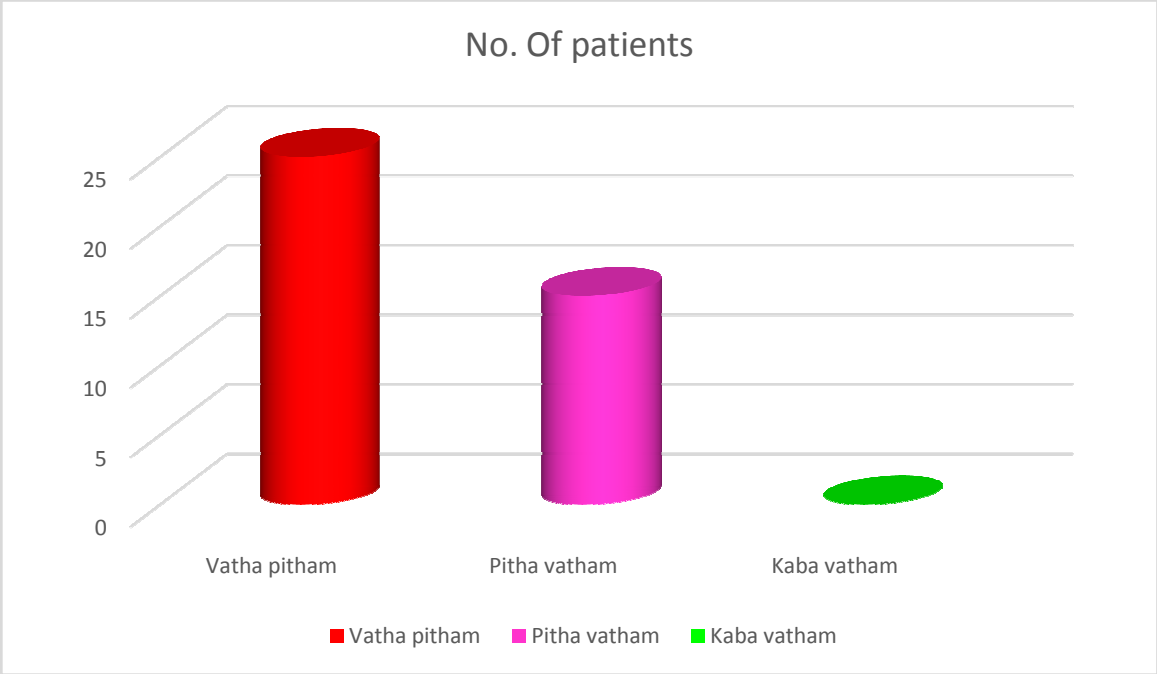
Inference

It was learnt during the study that Naadi was noted in all 40 cases (100%) Malam was affected in 15 cases (40%)

19. NAADI

Table : 19

S.No	Parameters	No. of patients	Percentage(%)
1	Vatha pitham	25	62.5
2	Pitha vatham	15	37.5
3	Kaba vatham	0	0



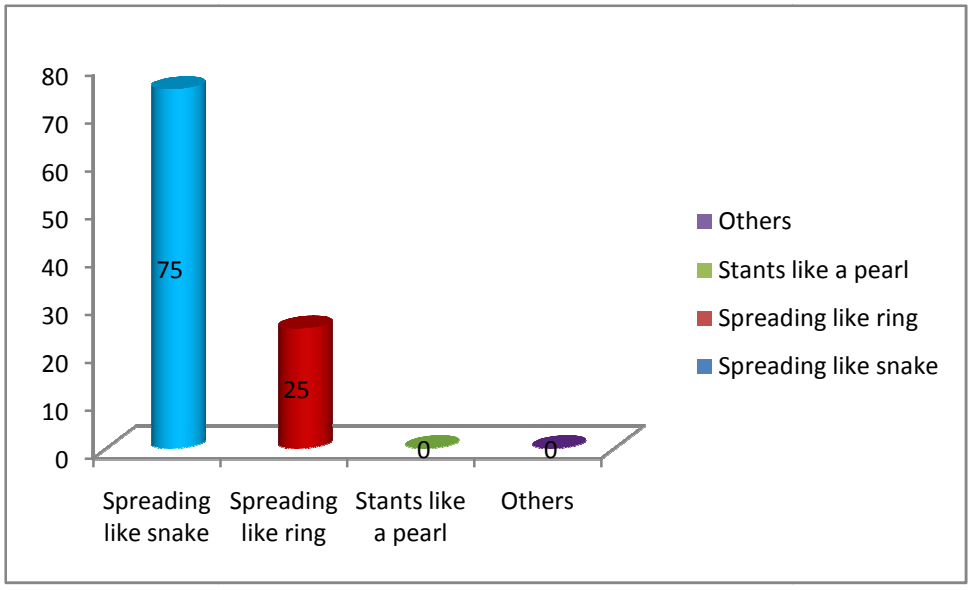
Inference

Among the 40 cases, Vathapitham 25 cases are affected, Pitha vatham 15 cases are affected

20. NEIKURI

Table 20. Illustrates the neikuri analysis

	Inference	No. Of patients	Percentage(%)
1	Spreading like snake	30	75
2	Spreading like ring	10	25
3	Stants like a pearl	0	0
4	Others	0	0
5	Total	40	100



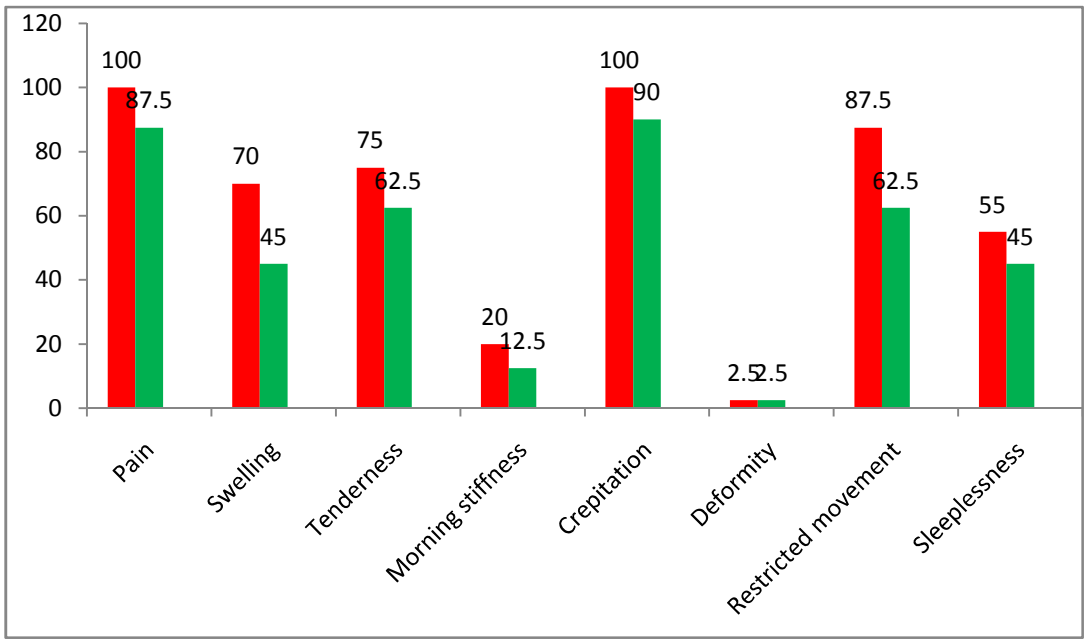
Inference

Among the 40 cases 30 cases are vathaneer, 10 cases are pithaneer

21. PROGRESSIVE CHART

Table : 21

	Clinical feature	Before treatment		After treatment	
		No.Of cases	Percentage	No.Of cases	percentage
1	Pain	40	100	35	87.5
2	Swelling	28	70	18	45
3	Tenderness	30	75	25	62.5
4	Morning stiffness	8	20	5	12.5
5	Crepitation	40	100	36	90
6	Deformity	1	2.5	1	2.5
7	Restricted movement	35	87.5	25	62.5
8	Sleeplessness	22	55	18	45

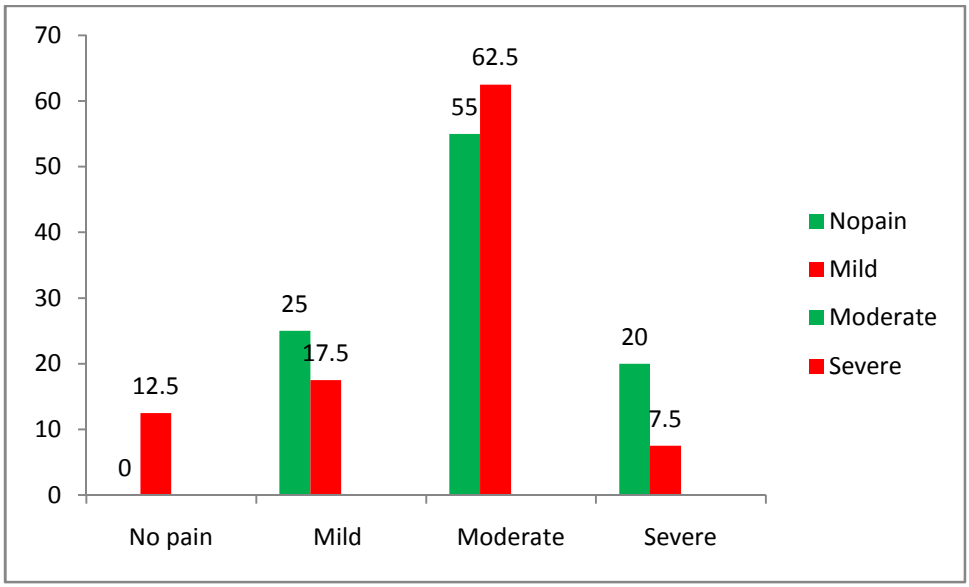


Inference

Among the 40 cases, 35 patiends had pain,25 patiends had tenderness, 36 patient s had crepitation , 18 patients had swelling, 5 patients had morning stiffness, 1 patients had deformity, 25 patients had restricted movement 18 patients had sleeplessness.

TABLE 22. ASSESSMENT OF CURATIVE EFFECTS IN PATIENTS TREATED ONLY WITH TRAIL DRUG (INTERNAL AND EXTERNAL MEDICINES ,EXTERNAL THERAPY)

	Initial readings		Final readings	
	No of patients	percentage	No of patients	Percentage
No pain	0	0	5	12.5
Mild	10	25	7	17.5
Moderate	22	55	25	62.5
severe	8	20	3	7.5



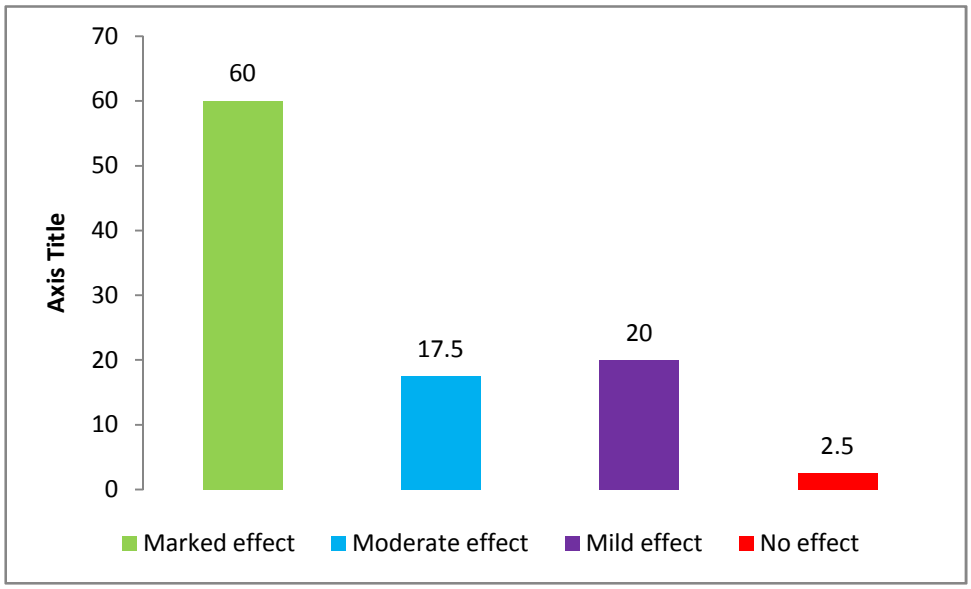
Inference

From the above study, it was inferred that severe pain that was noted in patients before treatment had a remarkable decline after treatment similarly moderate and mild pain were also observed to have decreased after treatment.

23. EFFECT OF THERAPY

Table 23

S.no	Effect of therapy	No. Of patients	Percentage(%)
1	Marked effect	24	60
2	Moderate effect	7	17.5
3	Mild effect	8	20
4	No effect	1	2.5



Inference

Thus from the analysis of the data collected during the course of treatment and at the end of treatment it is inferred that the overall effect of the therapy (internal, external and complementary) had marked effect of 60%, moderate effect of 17.5% and mild effect of 20% ,no effect of 2.5%.

MEASURMENT OF KNEE JOINTS

S.NO	PATIENT NAME	AGE/SEX	OP/IP NO	BEFORE TREATMENT		AFTER TREATMENT	
				Right (cm)	Left (cm)	Right(cm)	Left(cm)
1	SUNDARAM	55M	1959	35	33	31	30
2	PECHIYAMMAL	50F	560	38	36	34	33
3	MEENAMBAL	53F	565	39	38	33	32
4	ULTHAL	57F	135	34	33	30	30
5	BEEVIJAN	60F	2028	35	32	33	29
6	GNAMMAL	60F	3088	36	35	32	31
7	SUBBAMAL	55F	1749	33	32	29	30
8	SOKKALINGAM	60M	3099	40	39	35	34
9	ARUMUGAM	57M	1700	32	35	28	27
10	GANESHAN	54M	455	31	33	26	28
11	VELSAMY	56M	1819	41	39	38	37
12	MARIYAMMAL	60F	90051	38	31	36	33
13	SAROJA	42F	90210	39	37	36	33
14	RAJATHI	50F	34431	30	37	28	35
15	RAMALAKHSMI	49F	39860	24	28	22	26
16	MADASAMY	37M	58601	33	30	31.5	28
17	SANGARAMMAL	40F	56730	34	31	33	27
18	VASANTHA	45F	41910	35	32	31	30
19	KALYANI	47F	961	37	36	33	30
20	THANGAM	48F	57280	40	38	38	35.5
21	RAJKUMAR	55M	42401	38	31	33	27
22	SAMUTHIRAM	51F	16480	33	32	27	29
23	LINSY	36F	17411	25	23	20	18
24	KUMAR	58M	90690	30	32	27	29
25	MURUGAN	60M	272	29	26	24	22
26	PANNEERSELVAM	60M	263	29	30	25	26

INFERENCE: Knee joint swelling is reduced approximately 2-4 cms after treatment

CASE PRESENTATION – SUMMARY OF OUT PATIENTS

1.*ERANDAMOOLA CHOORANAM*– I*NTERNAL* 2.*KUNGILIA THYLAM*– EXTERNAL

OP CASES CLINICAL IMPROVEMENT

S.NO	IP NO	NAME	AGE/ SEX	OCCUPATION	DATE OF ADMISSION	DATE OF DISCHARGE	DAYS	RESULTS
1	90051	Mariyammal	60F	Ryot	31-1O-2018	03-12-2018	34 DAYS	**MODERATE**
2	90210	Saroja	42F	House Wife	01-11-2018	08-12-2018	38DAYS	**MILD**
3	34431	Rajathi	50F	Ryot	11-04-2019	08-05-2019	25 DAYS	**MARKED**
4	39860	Ramalakhsmi	49F	Tailor	30-04-2019	28-5-2019	29 DAYS	**MARKED**
5	58601	Madasamy	37M	Driver	13-07-2018	18-08-2018	37 DAYS	**MODERATE**
6	56730	Sangarammal	40F	House Wife	07-07-2018	13-08-2018	38 DAYS	**MARKED**
7	41910	Vasantha	45F	House Wife	O8-05-2019	05-06-2019	29 DAYS	**MILD**
8	961	Kalyani	47F	House Wife	04-01-2019	12-02-2019	40 DAYS	**MARKED**
9	57280	Thangam	48F	Tailor	09-07-2018	05-08-2018	28 DAYS	**MODERATE**
10	42401	Rajkumar	55M	Ryot	09-05-2019	05-06-2019	28 DAYS	**MARKED**
11	16480	Samuthiram	51F	House Wife	14-02-2019	10-03-2019	24DAYS	**MARKED**
12	17411	Linsy	36F	House Wife	16-02-20119	13-03-2019	26 DAYS	**MILD**
13	90690	Kumar	58M	Agricuiture	02-11-2018	02-12-2018	30 DAYS	**MARKED**
14	90372	Arumugam	49M	Agricuiture	01-11-2018	07-12-2018	37 DAYS	**MARKED**
15	89395	kathiresan	45M	Tailor	30-10-2018	30-11-2018	31 DAYS	**MODERATE**
16	89063	Ganesh	36M	Teacher	29-10-2018	01-12-2018	34 DAYS	**MARKED**
17	56688	Rajalakshmi	58F	Teacher	06-07-2018	10-08-2018	36 DAYS	**MILD**
18	32074	Kaliyammal	50F	House Wife	03-04-2019	01-05-2019	29 DAYS	**MARKED**
19	39768	Uma	50F	House Wife	09-05-2019	05-06-2019	28 DAYS	**MARKED**
20	32101	Vijaya	55F	House Wife	03-04-2019	30-04-2019	28DAYS	**MILD**

CASE PRESENTATION – SUMMARY OF IN PATIENTS

1.*ERANDAMOOLA CHOORANAM*– I*NTERNAL* 2.*KUNGILIA THYLAM*– EXTERNAL

S.NO	IP NO	NAME	AGE/ SEX	OCCUPATION	DATE OF ADMISSION	DATE OF DISCHARGE	DAYS	RESULTS
1	1959	SUNDARAM	55M	Tailor	01-8-2018	31-8-2018	31 DAYS	**MARKED**
2	560	PECHIYAMMAL	50F	Ryot	05-03-2019	01-04-2019	28DAYS	**MARKED**
3	565	MEENAMBAL	53F	Ryot	05-03-2019	30-03-2019	27 DAYS	**MODERATE**
4	135	ULTHAL	57F	House Wife	23-01-2019	15-02-2019	24DAYS	**MARKED**
5	2028	BEEVIJAN	60F	House Wife	07-08-2018	14-09-2018	39 DAYS	**MILD**
6	3088	GNAMMAL	60F	Ryot	15-12-2018	5-01-2019	22 DAYS	**MARKED**
7	1749	SUBBAMAL	55F	Ryot	10-07-2018	09-08-2018	30 DAYS	**MODERATE**
8	3099	SOKKALINGAM	60M	Farmer	18-12-2018	24-01-2019	37 DAYS	**MARKED**
9	1700	ARUMUGAM	57M	Farmer	4-07-2018	02-08-2018	29 DAYS	**MILD**
10	455	GANESHAN	54M	Hotel worker	22-02-2019	20-03-2019	26 DAYS	**MARKED**
11	1819	VELSAMY	56M	Hotel worker	18-07-2018	13-08-2018	27 DAYS	**MODERATE**
12	272	MURUGAN	60/F	Ryot	07-02-2019	8-03-2019	29 DAYS	**MARKED**
13	263	PANNEERSELVAM	45/F	Ryot	06-02-2019	7-03-2019	29 DAYS	**MILD**
14	364	MURUGESAN	60 M	Farmer	14-02-2019	19-03-2019	34 DAYS	**MARKED**
15	506	THANUSHKODI		driver	27-02-2019	04-04-2019	37 DAYS	**MARKED**
16	335	THAMBURAN	50M	Farme	12-O2-2019	30-03-2019	36 DAYS	**MARKED**
17	494	MURUGAN	57M	Ryot	26-02-2019	20-03-2019	23 DAYS	**MARKED**
18	14	SUBRAMANIYAN	57M	Hotel worker	03-01-2019	05-02-2019	33 DAYS	**MARKED**
19	1826	ESHWARI	60F	House Wife	19-07-2018	20-07-2018	32 DAYS	**MARKED**
20	2519	ARUMUGAM	57 M	Farmer	08-10-2018	05-11-2018	29 DAYS	**MARKED**

BLOOD INVESTIGATION BEFORE AND AFTER TREATMENT OP & IP PATIENTS

S.No	OP/IP No.	TC		DC						Hb		ESR		BL.SUGAR				BL.UREA		Se.Cr	
		BT	AT	N		L		E		BT	AT	BT	AT	F		PP		BT	AT	BT	AT
				BT	AT	BT	AT	BT	AT					BT	AT	BT	AT				
1	90051	7,500	7,800	50	60	38	38	2	2	10.2	11	25	20	99	99	130	130	25	24	0.8	0.7
2	90210	7000	7,800	58	68	29	30	2	1	10.5	11.5	26	17	110	100	138	137	26	24	0.8	0.7
3	34431	8000	8,600	58	68	32	30	4	2	11	11.5	25	20	102	102	125	120	26	22	0.7	0.6
4	39860	7,500	8,100	68	64	38	35	4	2	9.6	10.5	25	20	108	102	189	172	36	22	0.3	0.2
5	58601	8600	8400	69	67	27	27	3	2	9.6	10.1	34	25	96	92	176	140	34	29	0.5	0.3
6	56730	7800	7900	67	65	25	24	1	1	12.5	12.7	25	20	122	108	154	146	37	31	0.3	0.2
7	41910	8700	8500	65	65	28	24	4	3	13.5	13.6	31	23	136	127	179	161	22	19	0.2	0.4
8	961	8800	8000	69	67	27	26	2	1	12.2	12.4	19	11	142	128	165	148	35	32	0.3	0.3
9	57280	7400	7300	70	66	29	28	3	1	12.8	12.9	32	21	127	167	156	29	34	29	0.4	0.3
10	42401	7200	7600	65	67	26	24	4	2	11.8	11.9	25	11	99	90	149	132	29	22	0.4	0.3
11	16480	7800	7600	67	69	28	27	5	3	13.5	13.7	28	19	106	97	167	165	37	34	0.7	0.7
12	17411	7600	7500	68	68	27	25	3	1	12.2	12.4	27	20	97	92	149	135	28	27	0.7	0.6
13	90690	8300	8500	64	65	29	29	2	2	11.8	13.6	15	10	129	117	179	161	22	19	0.6	0.7
14	90372	8400	8700	63	62	28	29	4	2	12.2	12.4	19	11	89	85	149	140	34	29	0.6	0.6
15	89395	8200	8300	67	65	24	28	6	4	9.5	9.9	34	28	99	90	149	132	29	22	0.8	0.7
16	89063	8600	7600	65	62	26	29	2	2	13.5	13.7	28	19	136	127	167	156	29	25	0.8	0.8
17	56688	6800	6700	66	66	26	27	5	3	12.5	12.7	25	19	96	92	176	168	29	22	0.7	0.6
18	32074	7800	7900	68	65	26	25	4	2	11.8	11.9	25	20	99	90	149	132	29	22	0.5	0.9
19	39768	7400	7600	69	67	29	28	3	2	12.2	12.4	19	11	136	128	159	139	42	37	0.4	0.8
20	32101	7400	7300	68	65	28	27	2	1	10.9	11.1	30	19	121	118	172	159	19	15	0.7	0.6

BLOOD INVESTIGATION BEFORE AND AFTER TREATMENT OP & IP PATIENTS

S.No	OP/IP No.	TC		DC						Hb		ESR		BL.SUGAR				BL.UREA		Se.Cr	
		BT	AT	N		L		E		BT	AT	BT	AT	F		PP		BT	AT	BT	AT
				BT	AT	BT	AT	BT	AT					BT	AT	BT	AT				
21	1959	8600	8500	66	67	33	31	1	2	13.5	13.7	28	19	99	98	130	133	29	22	0.5	0.9
22	560	7500	7400	59	61	37	36	4	3	12.2	12.4	27	20	86	90	132	135	37	34	0.8	0.8
23	565	8800	8500	64	62	33	36	3	2	11.8	13.6	15	10	87	90	126	125	28	27	0.5	0.9
24	135	7800	7900	65	64	31	32	4	4	9.6	10.1	34	25	80	82	130	132	36	22	0.2	0.2
25	2028	8600	8800	71	69	24	28	3	3	12.2	12.4	25	20	88	85	132	136	29	25	0.3	0.2
26	3088	7800	7900	59	61	36	34	5	4	12.2	12.4	19	15	89	87	139	140	29	22	0.5	0.3
27	1749	8700	8800	64	62	33	36	3	2	9.5	9.9	20	17	79	85	127	128	34	29	0.3	0.2
28	3099	8800	8900	69	69	28	29	3	2	12.8	12.9	32	21	89	88	130	138	35	32	0.2	0.4
29	1700	9500	9000	68	66	33	36	3	2	11.8	11.9	25	20	90	88	136	138	34	29	0.3	0.3
30	455	7200	7600	69	67	28	31	3	2	12.2	12.4	19	11	87	90	120	130	29	22	0.4	0.3
31	1819	7800	7600	70	70	26	25	4	5	10.9	11.1	30	19	86	88	127	139	30	28	0.4	0.3
32	263	7600	7500	59	61	37	36	4	3	12.2	12.4	19	11	83	87	130	136	22	19	0.7	0.7
33	272	8300	8500	63	65	35	34	2	1	12.2	12.4	19	11	79	77	125	126	22	19	0.7	0.6
34	364	8400	8700	64	63	32	34	4	3	9.5	9.9	34	28	89	85	123	138	34	29	0.6	0.7
35	506	8200	8300	71	69	24	28	3	3	13.5	13.7	28	19	79	88	130	134	29	22	0.6	0.6
36	335	8600	8600	59	61	36	34	5	5	12.5	12.7	25	19	89	87	132	137	29	25	0.8	0.7
37	494	8800	8700	64	62	33	36	3	2	11.8	11.9	25	20	95	92	129	134	29	22	0.8	0.8
38	14	7800	7900	59	61	36	34	5	5	12.5	12.7	24	23	98	96	130	133	34	29	0.7	0.6
39	1826	7400	7600	62	64	32	34	6	2	13.5	13.6	31	23	82	90	135	140	37	31	0.5	0.9
40	2519	7400	7300	61	62	34	34	5	4	11.8	12.2	26	18	81	88	126	130	19	15	0.4	0.8

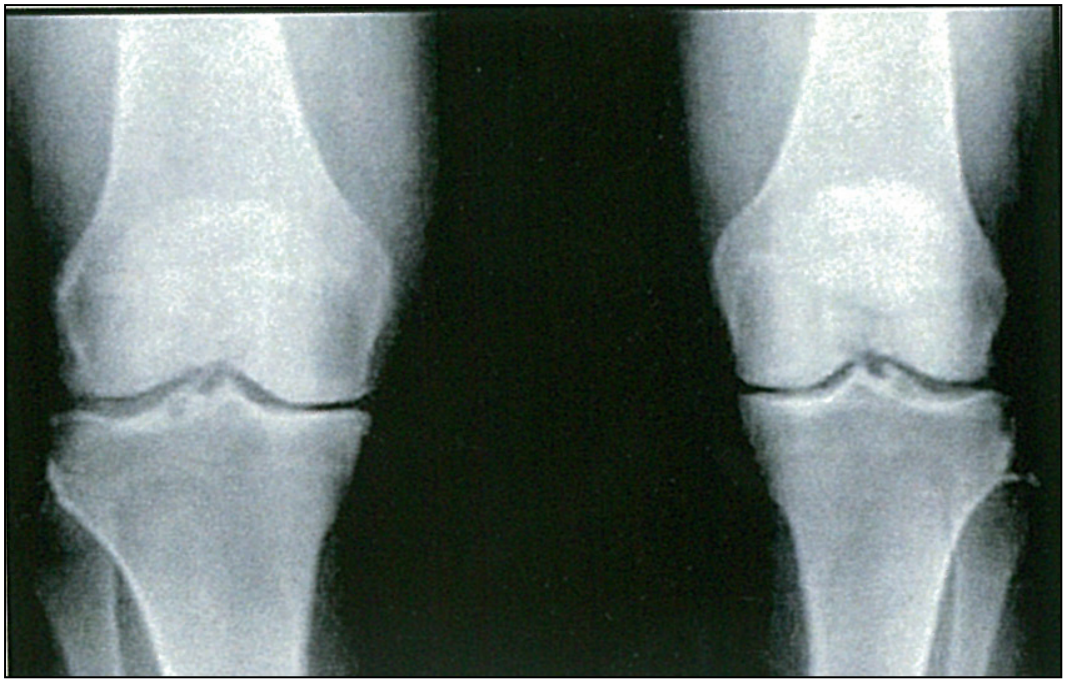
URINE EXAMINATION BEFORE & AFTER TREATMENT – OUT PATIENTS

S.NO	OP.NO	BEFORE TREATMENT			AFTER TREATMENT		
		ALBUMIN	SUGAR	DEPOSIT	ALBUMIN	SUGAR	DEPOSIT
1	90051	NIL	NIL	NAD	NIL	NIL	NAD
2	90210	NIL	NIL	NAD	NIL	NIL	NAD
3	34431	NIL	NIL	NAD	NIL	NIL	NAD
4	39860	TRACE	NIL	1-2 PUS CELLS	NIL	NIL	NAD
5	58601	NIL	NIL	NAD	NIL	NIL	NAD
6	56730	NIL	NIL	NAD	NIL	NIL	NAD
7	41910	NIL	NIL	NAD	NIL	NIL	NAD
8	961	NIL	NIL	NAD	NIL	NIL	NAD
9	57280	NIL	NIL	NAD	NIL	NIL	NAD
10	42401	NIL	NIL	NAD	NIL	NIL	NAD
11	16480	NIL	NIL	NAD	NIL	NIL	NAD
12	17411	NIL	NIL	NAD	NIL	NIL	NAD
13	90690	NIL	NIL	NAD	NIL	NIL	NAD
14	90372	NIL	NIL	NAD	NIL	NIL	NAD
15	89395	NIL	NIL	NAD	NIL	NIL	NAD
16	89063	TRACE	NIL	1-3 PUS CELLS	NIL	NIL	NAD
17	56688	NIL	NIL	NAD	NIL	NIL	NAD
18	32074	NIL	NIL	NAD	NIL	NIL	NAD
19	39768	NIL	NIL	NAD	NIL	NIL	NAD
20	32101	NIL	NIL	NAD	NIL	NIL	NAD

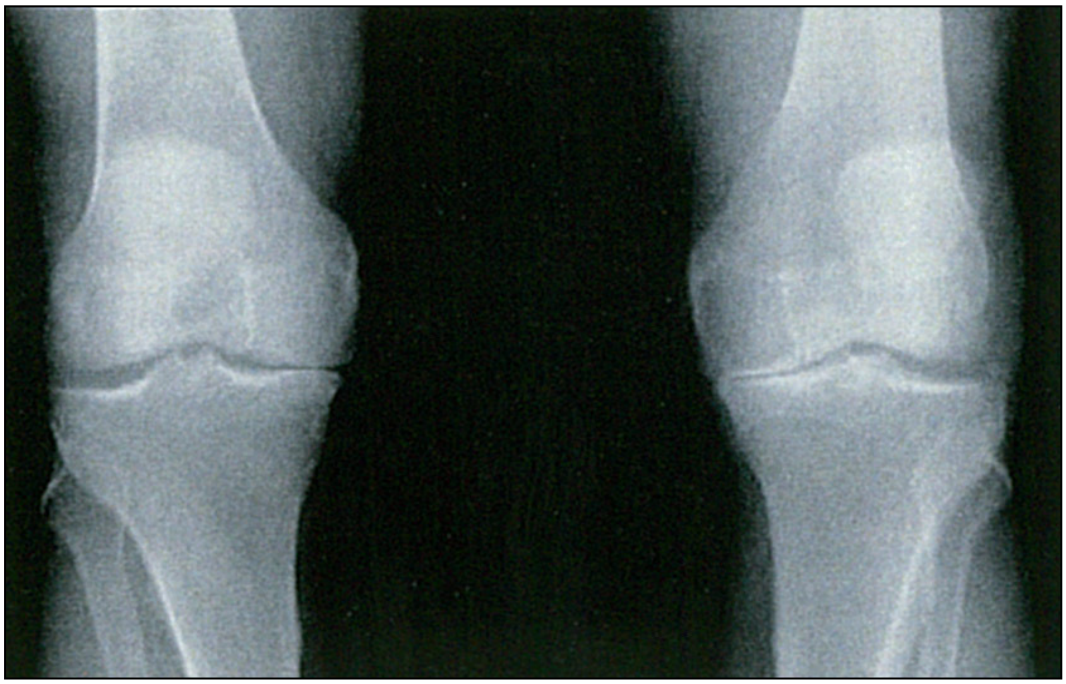
URINE EXAMINATION BEFORE & AFTER TREATMENT – IN PATIENTS

S.NO	IP.NO	BEFORE TREATMENT			AFTER TREATMENT		
		ALBUMIN	SUGAR	DEPOSIT	ALBUMIN	SUGAR	DEPOSIT
1	1959	NIL	NIL	NAD	NIL	NIL	NAD
2	560	Trace	NIL	2-3 pus cells	Trace	NIL	NAD
3	565	NIL	NIL	NAD	NIL	NIL	NAD
4	135	NIL	NIL	NAD	NIL	NIL	NAD
5	2028	NIL	NIL	NAD	NIL	NIL	NAD
6	3088	NIL	NIL	NAD	NIL	NIL	NAD
7	1749	NIL	NIL	NAD	NIL	NIL	NAD
8	3099	NIL	NIL	NAD	NIL	NIL	NAD
9	1700	NIL	NIL	NAD	NIL	NIL	NAD
10	455	NIL	NIL	NAD	NIL	NIL	NAD
11	1819	NIL	NIL	NAD	NIL	NIL	NAD
12	263	NIL	NIL	NAD	NIL	NIL	NAD
13	272	NIL	NIL	NAD	NIL	NIL	NAD
14	364	NIL	NIL	NAD	NIL	NIL	NAD
15	506	NIL	NIL	NAD	NIL	NIL	NAD
16	335	Trace	NIL	1-2 pus cells	NIL	NIL	NAD
17	494	NIL	NIL	NAD	NIL	NIL	NAD
18	14	NIL	NIL	NAD	NIL	NIL	NAD
19	1826	NIL	NIL	NAD	NIL	NIL	NAD
20	2519	NIL	NIL	NAD	NIL	NIL	NAD

X – RAY OF OUTPATIENTS



Ip No :1700 Name : Mr .Arumugam 57/m



Ip. No : 135 Name :Ulthal 60 / F


R
Lat
MRS.EMELDA 58/YRS 725 RIGHT KNEE JOINT AP/LAT 18-03-19 11:24 AM
St.ANTONY'S DIAGNOSTICS & RESEARCH CENTRE,TIRUNELVELI-2.

BEFORE TREATMENT

AFTER TREATMENT

6. DISCUSSION

Osteoarthritis is a chronic disorder of synovial joints in which there is progressive softening and disintegration of articular cartilage and bone at the joint margins (osteophytes), cyst formation and subchondral sclerosis, mild synovitis and capsular fibrosis.

Classified as

Primary (localized or generalized)

Secondary (Traumatic, congenital, metabolic) Characterized by focal and progressive loss of hyaline cartilage of joints, underlying bony changes.

Symptoms

- Pain
- Swelling
- Stiffness

The trial drug given below was used in treating the disease azhal Keel vayu the trial drugs are

- ***ERANDAMOOLA CHOORANAM (Internal)***
- ***KUNGILIA THYLAM (External)***

The clinical approval was done as per the protocol and the data were collected by using approved forms. The disease Azhal Keel vayu (Osteoarthritis of knee joint) was considered under various criteria to gather the secondary objectives of the study and the results were observed and tabulated. A variety of criteria and the results were discussed here under.

Gender distribution

From the above mentioned tabulation, Among the 40 patients selected, 52.5% were female and 47.5% were male.

Age distribution

Among the 40 patients selected this study shows high incidence of Azhal Keel vayu (Osteoarthritis of knee joint) was in above 41-50 Yrs (32.5) of Age and were 51-60 yrs (57.5%) of age, Azhal Keel vayu which is compared with osteoarthritis of knee joint which is degenerative disease, so the above interference explained it's significant as the age plays an important role upon the degenerative disease.

Kaalam distribution

From the above mentioned tabulation, Among the 40 patients selected in this study. Its shows the higher incidence was initiated to be pitha kaalam (97.5%).

Occupational status

In this study the rate of incidence is higher in occupational group which includes Housewifes (32.5%), Farmer and Labour (42.5%) and Driver (5%),Teacher (5%) , Tilor,Hotel worker (7.5)This study shows heavy work housewifes,Agriculture Labour are mostly affected.

Seasonal variations

From the above mentioned tabulation 13 patients 32.5% were admitted in Munpani kaalam, 4, patients 10% were admitted in Koothirkaalam, 10 patients 25% were admitted in Pinpanikaalam, 5, patients 12.5% were admitted in Ilavenil & Muthuvenil kaalam, 3 patients 7.5% were admitted in kaarkaalam . Mostly the patients were admitted in Munpani kaalam, Pinpanikaalam.

Thinai

From the above mentioned tabulation. 35 cases (87.5%) were from Marutham and 5 cases (12.5%) were from Neithal thinai.

Even though siddha literatures mention Marutham as a disease free zone, most of the patients came from Marutham Nilam. This may be due to the altered lifestyle, environment and food habits. Since this is a single centered study, located in Marutham thinai, it may also have influenced the study.

Socio-economic status

From the above mentioned tabulation, Out of 40 patients 55% were from low socio-economic status (poor), 37.5% were middle class, and 7.5% were rich. This higher incidence in the low socio-economic status may be due to over usage by farmer and manual worker among the poor. The incidence in the further population group may be due to improper nutrition and also the people living in poor sanitation.

Dietary habits

From the above mentioned tabulation patients 80% were reported to have mixed diet 8 patients 20% were reported vegetarian. So this has no statistically significant results.

Precipitating factor.

From the mentioned above tabulation result that the Menopause 25%, the occupation relation 50% ,obesity 22.5% and Hereditary 2.5% were the most important precipitating factors.

Mode of onset

From the above mentioned tabulation it shows that 75% of the cases were reported to be having gradual onset.

Since osteoarthritis is a degenerative disorder it usually has a gradual onset of symptoms.

Clinical features

According to this study, 100% of them had pain, crepitation, 75% of them had tenderness, swelling 70%, Restricted movement 87.5% patient had sleeplessness 55%,

Disturbances in kanmenthiriam

From the above mentioned tabulation, among 40 patients kaal have been affected in 100% of cases and in 16 patients eruvai have been affected (40%).

Distribution of Three Dhosham

Derangement in Vatham

Viyanan and Samanan were affected in all 40 cases (100%). Abanan were affected in 16 cases (40%) and kirukaran and Devathathan affected in 11 cases (27.5%)

Derangement in Pitham

Sathaga pitham was affected in all 40 cases (100%) Ranjagapitham was affected in 15 cases (37.5%), Anarpitham was affected in 14 cases (35%).

Derangement in kabam

Avalambagam,Santhigam was affected in all 40 cases (100%).

Udal kattukal

In all 40 cases, among the seven udal kattukal saaram, Kozhuppu, Enbu were found affected 100% (Restricted movements, swelling, crepitations present) and and senneer is affected in 9 cases (22.5%).

Envagai Thervugal

The analysis showed the efficacy of this method and the prime importance of Naadi.

Among the 40 cases Naadi have been affected in all cases while malam have affected in 15 cases (40%)

Naadi

In Naadi, among all 25 cases (62.5%) were vathapitha naadi, 15 cases (37.5%) were pithavatha naadi .

Neikuri

In Neikuri analysis, 52.5% of the cases presented with vatha neer, 22.5% with pithaneer, and 25% with kabaneer.

Laboratory investigations were done in all the cases before and after treatment. The significant variations occur in parameters like Hb, while other parameters have insignificant variation.

Pre-clinical studies

The Biochemical study of ***ERANDAMOOLA CHOORANAM*** had revealed the presence of Calcium, sulphate, Iron (ferrous), Unsaturated compound, Tannic acid, Amino acid.

Pharmacological studies

The pharmalogical studies done in ***ERANDAMOOLA CHOORANAM*** , revealed the presence of actions such as

1. Anti inflammatory action
2. Analgesic activity.

Toxicity studies

Acute toxicity studies have done for ***ERANDAMOOLA CHOORANAM*** in rats and it is analyzed that they have no toxicity.

Treatment

The treatment was aimed to retain the deranged dhosham and providing relief from symptoms. Before treatment the patients were advised to take Vellai ennai – 15ml with hot water during early morning in empty stomach for first day of treatment. The patients was asked to take rest from internal medicine and other activities on that day. From the next day, onward the internal medicine to be given.

The author treated the patients with trial drugs ***ERANDAMOOLA CHOORANAM*** (Internal Medicine) 3- 6gms BD, and ***KUNGILIA THYLAM*** (External Medicine). During treatment, the patients were advised to follow pathiyam (avoid tamarind, tubers, meat etc). But all aspects of pathiyam could not be imposed due to practical difficulties.

7. SUMMARY

Osteoarthritis is the most common form of arthritis. It causes pain, swelling and reduced motion in joints.

I have taken this as my dissertation and treated with ***ERANDAMOOLA CHOORANAM*** as i*nternal medicine* and ***KUNGILIA THYLAM*** as *external medicine* in azhal keel vayu (Osteo arthritis of knee joint).

40 cases with azhal keel vayu were diagnosed clinically and admitted in the Inpatient ward and Outpatient ward of Post graduate department of Sirappu Maruthuvam, Government Siddha Medical College hostpital, Palayamkottai and treated by the trial medicines.

- Laboratory diagnosis of azhal keel vayu was done by siddha diagnostic principles and endorsed by modern methods of investigations.
- The various siddha aspects of examination of the disease were carried out and were recorded in the proforma.
- The trial medicine chosen for both internal and external treatment were ***ERANDAMOOLA CHOORANAM(Internal)*** in 3-6 grm twice a day for forty eight days as per the severity of the diseases, ***KUNGILIA THYLAM*** (***External***).
- Before starting the treatment careful detailed history was carried out and recorded for the forty selected cases.
- During the period of treatment all the patients were put under pathiyam (A specific dietary regimen).
- A periodical laboratory investigation was made for all the cases along with the radiological investigations.
- The observations made during the clinical study shows that the main internal drug ***ERANDAMOOLA CHOORANAM*** is clinically effective.
- Though there was appreciable clinical improvement, there were not much remarkable radiographic changes.

The action of external application of ***KUNGILIA THYLAM*** with ***PATTRU*** were given best results in patients than the patients were treated with internal medicine alone.

Treatment

The treatment was aimed to retain the deranged dhoshas and providing relief from symptoms. Before treatment the patients were advised to take Vellai ennai-15ml with hot water in early morning for first day of treatment.

From the second day onwards internal medicine ***ERANDAMOOLA CHOORANAM*** 3- 6 gms two times day after food and of ***KUNGILIA THYLAM*** is given as external.

At the time of treatment the patients were advised to follow Pathiyam and specially advised to avoid foods which increase vadha.

Along with the course of treatment the complementary therapies like ***pattru*** were given additionally to all of them patients.

The outcome of this study is mainly assessed by reduction in pain, swelling, stiffness in knee joint. Increased range of reduction of restricted movements and improvement in quality of life universal pain assessment scale was also used to detect proper outcome. No adverse effect was noted for both Internal and External medicine along with the course of treatment

8. CONCLUSION

All 40 patients (OPD and IPD – patients with trial medicines and external therapy) were treated for this dissertation work with ***ERANDA MOOLA CHOORANAM*** (Internal) 3 to 6gms two times a day and ***KUNGILIA THYLAM*** (externally)

In the pre clinical study pharmacological evaluation of the trial drug shows.

- Significant analgesic effect
- Significant Anti inflammatory effect (Internal medicine)

In the preclinical study toxicity study of "***ERANDA MOOLA CHOORANAM***" shows that the trial drug had no acute toxicity.

The overall effect of the clinical trial drug are

Marked effect	-	60%
Moderate effect	-	17.5%
Mild effect	-	20%
No effect	-	2.5%

This result of the clinical trial illustrates the marked effect of the drugs and complementary therapy.

The trial drug ***ERANDA MOOLA CHOORANAM*** and external ***KUNGILIA THYLAM*** is effective. No adverse effects were noticed during the treatment period. So the trial medicine is safe and easily preparable medicine.

ERANDA MOOLA CHOORANAM
(Internal Medicine)

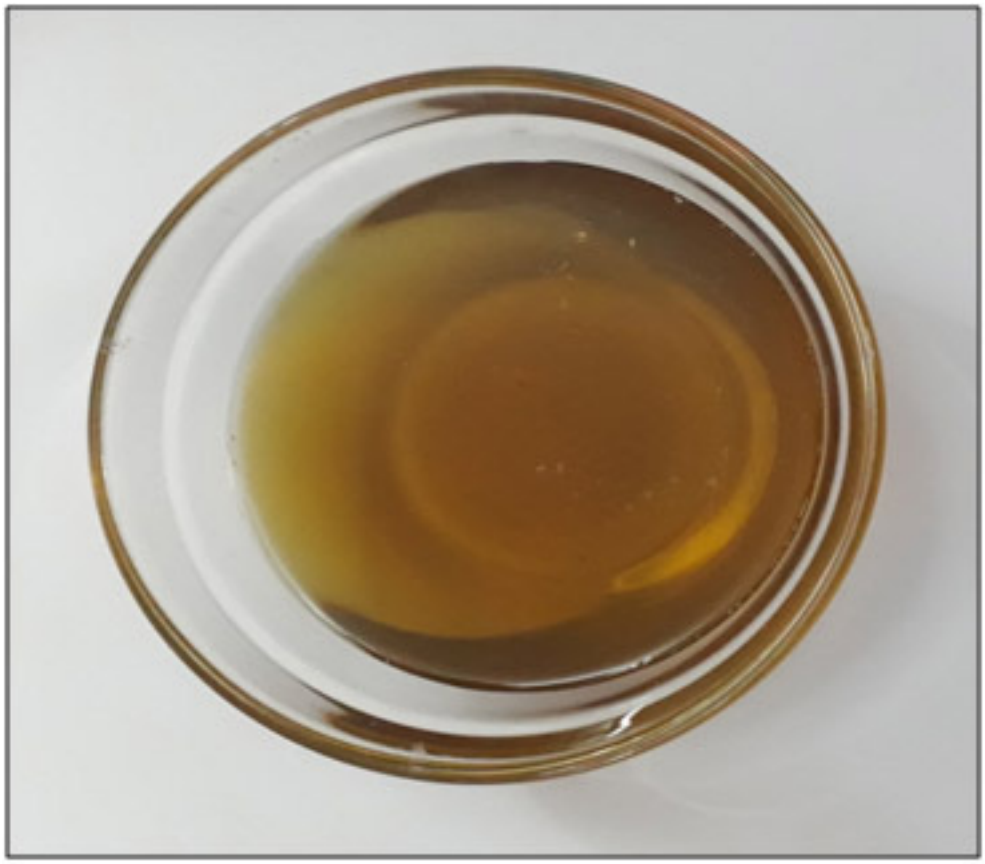
AAMANAKKU VER

ERANDA MOOLA CHOORANAM

KUNGILIA THYLAM
(Internal Medicine)

POONAIKAN KUNGILIYAM

GINGELLY OIL



KUNGILIYA THYLAM

PATTRU

Vasambu

Vasambu Powder

Kaichukatti

ANNEXURE –I

STANDARD OPERATING PROCEDURE FOR PREPARATION OF ERANDA MOOLA CHOORANAM AND KUNGILIA THYLAM

SOURCE OF TRIAL MEDICINE:

The required drugs for preparation of "**ERANDA MOOLA CHOORANAM"** (INTERNAL), "**KUNGILIA THYLAM"** (EXTERNAL) are purchased from a well reputed country shopand Raw drugs are Authenticated by Medical botanist of Govt. Siddha Medical College, Palayamkottai, then purified and the medicine is prepared in the Gunapadam laboratory of Govt. Siddha Medical College, Palayamkottai.

INTERNAL MEDICINE:

ERANDA MOOLA CHOORANAM

Ref : ANUBOGA VAITHYA THEVA RAGASIYAM

INGREDIENTS:

S.NO.	DRUG	BOTANICAL NAME	PART USED	AMOUNT
1.	AMANAKKU VER	RICINUS COMMUNIS	ROOT	35 Gram

PURIFICATION :

All above drugs are purified under the formulation of "Anupoga Vaithiya Bramma Ragasiyam and Sarakku Suthi Muraigal"

Dose : ¼ to ½ Thoola (3 to 6 Grams)

Duration : 40 days

PREPARATION:

The Drug is purified properly and dried in shade and made in to powder

DRUG STORAGE:

The trial drug **ERANDA MOOLA CHOORANAM** is stored in clean dry air tight container & it is dispensed to the patients in packets.

AAMANAKKU VEER

RICINUS COMMUNIS	**:**	Aamanakku
FAMILY NAME	**:**	Euphorbiaceace
OTHER NAMES	**:**	
TAMIL NAMES	**:**	Erandam, Chiththiram , Thalarubam ,
ENGLIESH NAME	**:**	Castor Oil Plant
SANSCRIT NAME	**:**	Yeranda-Vrikshaha
TELUNKU	**:**	Amudapu - Chettu
MALAIYALAM	**:**	Anakkuav
HINDI	**:**	Arand-Ka-Per, Anandi-Ka-Per
KANNADAM	**:**	Herald-Gida

Habitat :

This plant is common and quite wild in the jungles in India and is by far the largest producer. It is cultivated throughtout India , chiefly in the Madras, Bengal ,and Bombay persigancies

Two varieties of plant are known:

1. A perennial bushy plant with large fruits and large red seeds which ,yield about 40p.c. of oil ; and
2. A much smaller annual shrub with small grey (white) seeds having brown spots and yielding 37 percent of oil

Distribution

Usually cultivated for oilseeds, sometimes found as an escape in wastelands. Bilaspur, Chhatarpur, Damoh, Dhar, Ralpark Raipur, Seoni, Sidhi, Surguja. W. Nimar.

Botanical Description

Large shrubs or small trees, with fistular stem and large, palmetly 5 to 10-lobed leaves. Flowers in p yramidal panicles . Capsules globose, spiny, of 3- cocci; seeds caruncled.

Flowering & Fruiting

September-May.

Medicinal Parts

Root, Leaves, Flowers, Fruits, Seedis& Seed oil.

Chemical Constituents

Plant Contains :

- Ricinine.

Leaves Contains :

- Alkaloids,
- Ricine,
- Ricinine, And Flavanol Glycosides,
- Amyrin,
- Stigmasteorl,
- Sitosterol
- Quercetin,
- Rutin, Hyperoside.

Flowering Heads Contain:

- Coumarins,
- Hyperoside And Flavonoid Rutin,
- Alkaloid Ricinine.
- Seeds Yield Lectin.

Root Contain :

- Resin ,
- Tanin
- Starch.,
- Antimicrobialagents.
- Calcium,
- Magnesium,
- Potassium.,
- Amino Acid.

Seeds Contain :

- 50 Per Cent Oil,
- Protein
- Ricinine,
- Ricin,
- Lipate Enzyme,
- Fixed Oil.

Fixed Oil Contains :

- Glycerides,
- Ricinolesis,
- Isoricinoleic Acid,
- Stearic Acid,
- Crystals Of Calcium Oxalate,
- Nitrate.
- Palmitic,
- Stearic,
- Arachidie,
- Hexadecencic,
- Oleic, Linoleic,, Linolenic, Ricinoleic And Dihydroxy Stearic Acid.

Biological Activities

- Alterative,
- Anti-Inflammatory,
- Aphrodisiac,
- Carminative,
- Febrifuge
- Purgative
- Stomachic.

Uses :

- Castor oil is used as a refrigerant This on is laxative.
- This is very effective in colic pains, ulcer and also in the treatment of irritation of Eye, Nose, Ear, and Mouth

- The cooked mixture of leaves and red gram is an galactogogue .
- Leaves warmed over a fire and applied to the breasts of woman induces better flow of milk .
- Leaves applied to the abdomen promote menstrual discharge
- The mixture of equal quantities of sugar and root is very effective in veneral
- inflammation. It cures musucular rheumatism, paralysis, asthma and cough.
- hydrocoel, jaundice, lumbago, piles, rheumatism, sciatica, skin
- diseases . Leaves-Cough, worms infestation. .
- A poultice of the crushed seeds is used to promote suppuration, to mature boils and to reduce gouty and rheumatie swellings.

Ammanakku root uses:

- The root of the plant also useful as an ingredient of valous prescriptions for nervous diseases and rheumatic affections such as lumbago, pleuradynia and scistica, In pleurodynia or pain in the sides,
- a decoction of the root is given with the addition of impure carbonate of potash(Sharangdhara).
- Dried root is used us a febrifuge..
- In affections of the eyes a decoction of the Bark, Leaves And Root of the plant in goat's milk and water is recommended for use as a wash-(Chakradatta)
- Aamanakku Root,leaf, seed- Diseases of ***vatham***, consupation, piles, jaundice, intercostal neuralgia, leucorrhoea, dysuria.
- Decoction of roots given in lumbago

Active principles :

- Carrageenan,
- Bradykinin,
- Albumin,
- Ricin,
- Cademine,
- Carotinoids,
- Chelerythirine,
- Coptisine,
- Ricenoleic Acid,
- Txoalbumin.

Ammanakku veer :

Botanical Name	:	Ricinus Communis
Family	:	Euphorbiaceae.
சுவை	:	கசப்பு
வீரியம்	:	வெப்பம்
பிரிவு	:	கார்ப்பு
செய்கை	:	வாதமடக்கி

பொதுகுணம்

"வாதத் தொடக்கை வரவொட்டா மற்படிக்குக்
காதத்துக் கப்பாற் கடியுமே – சூதத்தைப்
பேரண்டப் பந்திக்கும் பேதிக்கு நோய் காட்டை
யேரண்ட மென்பதினியே"

- தேரன் வெண்பா

வளிகுற்றத்தைத் தன்னிலைபடுத்தச் செய்யும் குடிநீர்களிலும், தைலங்களிலும் ஆமணக்கு வேர் சேர்க்கப்படுகிறது.

EXTERNAL DRUG:

KUNGILIA THYLAM

Ref: MARUNTHU SEI EYALU KALAIUM

S.NO.	DRUG	BOTANICAL NAME	PART USED	AMOUNT
1	POONAI KANKUNGILUM	PISTACIA LENTISCUS	GUM	10 Gram
2	GINGELY OIL	RICINUS COMMUNIS	SEED	100 Gram

PURIFICATION:

All above drugs are purified under the formulation of "Anupoga Vaithiya Bramma Ragasiyam and Sarakku Suthi Muraigal"

METHOD OF PREPARATION

Make Kungulium in to powder and add gingely oil an heat it and filtered I after Kungulium gets dissolved

INDICATIONS:

It is indicated externally for Joint Pain

நல்லெண்ணெய்:

Botanical Name	:	Sesamum Indicum
Family	:	Pedaliaceae
வேறுபெயர்கள்	:	திலம், எள்நெய்
பயன்படும்உறுப்பு	:	இலை, பூ, காய், விதை
சுவை	:	இனிப்பு
தன்மை	:	வெப்பம்
பிரிவு	:	இனிப்பு

Therapeutic action:

- Demulcent
- Laxative
- Nutritive
- Emollient

பொதுகுணம்

புத்திநயனக்குளிர்ச்சி பூரிப்பு மெய்ப்புளகஞ்
சத்துவங் கந்தி தனியிளமை – மெத்தவுண்டாங்
கண்ணோய் செவிநோய் கபாலவழல் காசநோய்
புண்ணோய்போ மெண்ணெய்யாற் போற்றும்.

புத்திக்குத் தெளிவு, விழிகளுக்குக் குளிர்ச்சி, உடல்பூரிப்பு, உடல்வன்மை ஆகியவற்றைத் தருவதோடு, கண்ணோய், காதுநோய், தலைக்கொதிப்பு, சொறி, சிரங்கு, புண் முதலியவைகளையும் போக்கும்.

பொதுகுணம்:

கண்ணுக்கு ஒளியையும் உடலுக்கு வன்மையும் தரும்
குருதி பெருக்கை உண்டாகும்

- அகத்தியர் குணவாகடம்

Varieties :

Three varieties of sesamum seeds are found. Block ,White, and Red or brown. The black variety is the most common and yields the best quality of oil and is also the best used for medicinal purposes. But the white variety is richer oil.

Parts Used :

Seeds and the fixed oil expressed from the seeds

Chemical constituents

Seeds contain fixed oil 50 to 60 u.c., (white black & red varieties about 46 p.c.) Analysis:--

	Moisture:	Oil:
Black Til	2.0 to 5.2 p.e.	44.6 to 56.9 p.c.
Red Til	_____	15.7 to 55.5 p.c
White Til	2.0 to 4.4 p.	44.9 to 58.2 p.e.

(Bom. Govt. Agri: Dept. Bulletin).

Seeds also contain proteids 22 p.c., carbohydrates 18 p.c. mucilage 4 p.c, Woody fibre 4p.c., and ash 4.8 p.c. Oil contains 70 p.c. of liquid fats consisting of the glycerides of oleic and linoleic acids and 12 to 14 p.e. of solid fats, stearin, palmitin and myristin; a crystalline substance sesamin and a phenol compound sesamol.

- Palmitic acid
- Stearic acid
- Archidic acid
- Linoleic acid
- Oleic acid
- Vitamin E,
- Sesamin,
- Segamolin,
- Phytosterol.

Therapeutic Actions :

- Emmlnagogie,
- Stimulant,
- Tonic,
- Diuretic,
- Galactogogce.
- Nourishing.
- Lactagogue
- Laxative,
- Emollient And Demuloent;

Uses :

- Seeds are specially useful in piles, dysentery', scorpion sting and constipation ,taken in decoction or as sweet meats.
- A compound decoction of the seeds with linseed is used in cough and as an aphrodisiac .
- Ground to a paste with water, they are given with butter for bleeding piles; if taken. large quantities, they are capable of producing abortion.
- In amenorrhoea and dysmenorrhoea, the administration of powdered seeds in ten grain doses three or four times daily

PISTACIA LENTISCUS

Tamil Name	:	Poonaikan Kungiliam
Botanical Name	:	Pistacia Lentiscus
Family	:	Anacardiaceae
Other Name	:	Rumimashtaki Kungiliyam
English Name	:	Mastiche Tree.
Hindi Name	:	Mah. & Guy-Resin) Rumi Mastaki
Part Used	:	Gum Resin
சுவை	:	கைப்பு
வீரியம்	:	வெப்பம்
பிரிவு	:	கார்ப்பு

Habitat :

Growing in countries bordering on the Medi terranean; its resin called the mastiche and obtained by incisions. made in the bark, is imported into India from Asia Minor through Persia and Afghanistan

Constituents.

Leaves contain :

- A colouring matter and tannin

Fruit contains :

- Bimalate of lume;

Other Constituents :

- Resin,
- Essential Oil (of fruit or leaves?).

Action-

- Stimulant,
- Diuretic.
- Mastiche Galls Are Acid
- Astringent.--(Chopra).
- Stomachic,
- Diaphoretic,
- Astrigent,
- Refrigerant,
- Emmenagogue, Expectorant

பொதுகுணம்:

குந்திரிக்கம் ‘‘நரம்பு சம்பந்தமாக நோய்களுக்கும், வாத நோய்களுக்கும்’’ சிறந்த மருந்தாகும்

Uses

- This is smilar to cat’s eye. The resin cures oedema
- Leaves in infusion or decoction (1 in 10) in doses of ½ to 1 ounce, or as liquid extract in ½ to 1 drachm doses are used.
- Paste of leaves is also employed in medicine.
- "Mastiche is used as a masticatory in tooth affections, and by dentists, for filling carious teeth.

- A solution of 2 parts of mastiche gum dissolved in 1 of either chloroform or ether and applied on cotton wool.
- It contain a trace of volatile oil; two resins – alpha resin or mastachic acid 90p.c ; and Beta resin or mastachine 10 p.c also an ethereal oil,
- Gum mastiche is applied as a paste to the chest in catarrh ,bronchitis, and to relive local pain

EXTERNAL THERAPY

PATTRU

Ref : gunapadam mooligai vaguppu

PREPARATION

Vasambu and kaichukatti grinded with water and applyed it.

PATTRU

The pattru in siddha is obtained from plant extracts or grinding raw drugs with or without processing them and are either heated or not heated ,is made into a thick paste and applied, or pasted on the affected area**.**

VASAMBU

Tamil Name	:	Vasambu
Botanical Name	:	Acorus Calamus
Family	:	Acoraceae
Other Names	:	வசை, வேணி, உரைப்பான், பிள்ளைமருந்து, உக்கிரம்.
Engilsh Name	:	Sweet-Flag
Sanskrit Name	:	Vacha
Part Used	:	Rhizome
Suvai	:	Kaarppu
Thanmai	:	Veppam
Pirivu	:	Kaarppu

Acorus calamus (vasambu) are anti-inflammatory when used topically for arthritis , topical preprations must contain compounds that penetrate the skin ,inhibit pain receptors such as transient receptor potentialaction channels and

cyclooxygenase-2 to relive pain. Inhibition of pain in the skin disturbs the pain cycle and avoids exposure of internal organs to large amounts of toxic compounds.

Constituents

- Volatile Oil,
- Asarone
- Phenylindane Derivative,
- Phenyl Propane Derivative.
- Acorin
- Acoretin,
- Calamine,
- Calamen,
- Calamenol,

Action

- Stimulant
- Nervine Tonic
- Hypotensive
- Tranquilizer
- Sedative
- Analgesic
- Anticonvulsant
- Emetic
- Antispasmodic
- Carminative
- Nervine Sedative
- Insecticide,

Active Principles :

- Beta-Asarone,
- Asarone,
- Beta-Isomer,
- Phenylpropanoids

பொதுகுணம்

பாம்பாதி நஞ்சற் புதப்புண் வலிவிடபாகங் குன்மம்
சூம்பா ரிரத்தபித் தம்முக நாற்றம்வன் சூலைசன்னி
வீம்பாம்பை காசம் பிலீகஞ் சிலிபதம் வீறிருமல்
தாம்பாங் கிருமி யிவையேரு மாசிவ சம்பினையே. (தே.கு.)

Uses:

Used in dyspepsia ,fever,skin disease,expectorant,stomachic

CATECHU NIGRUM –(Kachukatti)

Tamil Name	:	காய்ச்சுக்கட்டி
Botanical Name	:	Acacia Catechu
Family Name	:	Leguminasae
சுவை	:	துவர்ப்பு
தன்மை	:	சீதம்
பிரிவு	:	கார்ப்பு
செய்கை	:	துவர்ப்பி

Habitat : Burma, India.

- Black catechu is an extract prepared from the heartwood of *Acacia Catechu*, Willd. (N.O. Leguminosae), a tree indigenous to India and Burmah.
- It is official in India and the Eastern and North American Colonies for use in making official preparations, for which pale catechu (gambier) is directed to be used.
- The bark and sapwood are stripped from the trunk, the red heartwood cut into chips and boiled in water in earthen pots.
- The decoction is strained and boiled down in iron pots to a syrupy consistence; this is allowed to cool and is then poured into a wooden mould lined with leaves or paper and left to harden
- . The resulting solid extract forms large masses, which are broken up into pieces of irregular shape and exported.
- Black catechu or cutch occurs in irregular dark brown or nearly black masses, to which pieces of leaves or paper are often found adhering.
- It is brittle, the fractured surface exhibiting numerous small cavities.
- It yields a reddish-brown powder, with an astringent taste.

Catechu is an herb. The leaves, shoots, and wood are used to make medicine.

- The two types of catechu, black catechu and pale catechu, Both contain slightly different chemicals, but they are used for the same purposes

Constituents:

The chief constituents of Black Catechu are Catechu

- Tannic Acid (25 To 35 Per Cent.)
- Gallic Acid Oily Mater (Fat14%)
- Arecoline 0.07%
- Arecine 1%
- Acacatechin (2 To 10 Per Cent.),
- Quercetin, And Catechu Red;
- Gum And Colouring Matter are also present in the Drug.
- Black Catechu differs from Pale Catechu in being devoid of a Fluorescent Body.

Action And Uses :

Black Catechu resembles Pale Catechu in its properties, and is employed for similar purposes.

- **Osteoarthritis.** Early research suggests that taking catechu extract in combination with Baikal skullcap seems to reduce pain in people with osteoarthritis of the knee.
- Catechu is most commonly used by mouth for **stomach problems such as diarrhea, swelling of the colon (colitis)**, and indigestion.
- It is also used orally for pain from **osteoarthritis** and topically to treat pain, bleeding, and **swelling (inflammation).** But there is limited scientific evidence to support any of these uses.
- **Injuries.**
- **Diarrhea.**
- **Swelling of the nose and throat.**
- **Swelling in the colon.**
- **Bleeding.**
- **Cancer.**
- **Skin diseases.**
- **Hemorrhoids.**

ANNEXURES –II

QUALITATIVE AND QUANTITATIVE ANALYSIS

BIO-CHEMICAL ANALYSIS OF ERANDA MOOLA CHOORANAM (IN POWDER FORM)

Preparation of the extract

5 grams of the drug was weighed accurately and placed in a 250ml clean beaker. Then 50ml of distilled water added to it and dissolved well. Then it was boiled well for about 10 minutes. It was cooled and filtered in a 100ml volumetric flask and then it is made upto 100ml with distilled water. This fluid was taken for analysis.

QUALITATIVE ANALYSIS

S.No.	EXPERIMENT	OBSERVATION	INFERENCE
1	**TEST FOR CALCIUM** 2ml of the above prepared extract is taken in a clean test tube. To this add 2ml of 4% Ammonium oxalate solution.	A white precipitate is formed	Absence of calcium.
2	**TEST FOR SULPHATE** 2ml of the extract is added to 5% Barium Chloride solution	A white precipitate is formed	Indicates the presence of sulphate
3	**TEST FOR CHLORIDE** The extract is treated with silver nitrate solution.	A white precipitate is formed	Absence of chloride.
4	**TEST FOR CARBONATE** The substance is treated with concentrated Hcl.	No brisk efference is formed	Absence of Carbonate

5	**TEST FOR STARCH** The extract is added with weak iodine solution	Blue Colour is formed.	Absence of Starch
6	**TEST FOR FERRIC IRON** The extract is acidified with Glacial acetic acid and potassium ferro cyanide.	No blue color is formed.	Absence of ferric iron
7	**TEST FOR FERROUS IRON** The extract is treated with concentrated Nitric acid and Ammonium thiocyanate solution.	Blood red colour is formed.	Indicates the presence of ferrous Iron.
8	**TEST FOR PHOSPHATE** The extract is treated with Ammonium Molybdate and concentrated nitric acid	No yellow precipitate is formed	Absence of Phosphate
9	**TEST FOR ALBUMIN** The extract is treated with Esbach's reagent	No yellow precipitate is formed.	Absence of Albumin.
10	**TEST FOR TANNIC ACID** This extract is treated with ferric chloride.	No blue back precipitate is formed	. Indicates the presence of tannic acid
11	**TEST FOR UNSATURATION** Potassium permanganate solution is added to the extract.	It gets decolorized	Indicates the presence of unsaturated compound
12	**TEST FOR THE REDUCING SUGAR** 5ml of Benedict's qualitative solution is taken in a test tube and allowed to boil for 2 minutes and add 8-10 drops of the extract and again boil it for 2 minutes	Colour change occurs	Absence of reducing sugar

13	**TEST FOR AMINO ACID** One or two drops of the extract is placed on a filter paper and dried well. After drying 1% Ninydrin is sprayed over the same and dried it well.	violet colour is formed.	Indicates the presence of Amino Acid.
14	**TEST FOR ZINC** The extract is treated with Potassium Ferro cyanide.	No white precipitate is formed.	Absence of Zinc.

RESULTS

The Bio chemical analysis of the trial drug *Erandamoola chooranam* was tabulated above in table . The trial drug *Eranda moola chooranam* contains.

1. Sulphate
2. Ferrous Iron
3. Unsaturated compound
4. Tannic acid
5. Amino Acid.

ANNEXURE – III

FTIR ANALYSIS OF ERANDA MOOLA CHOORANAM

AIM :

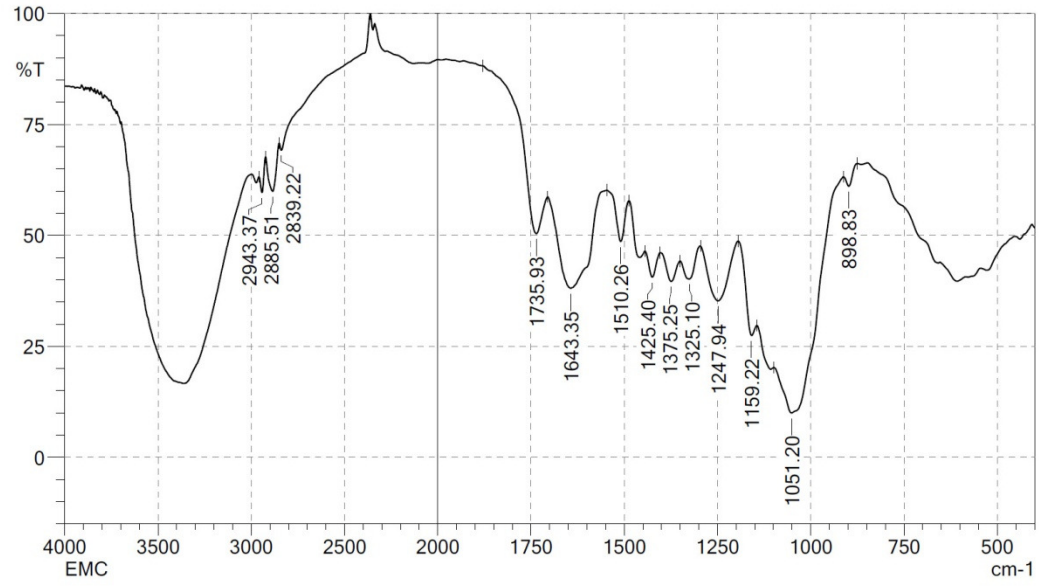
To identify the functional group presend in the trial drug **, Eranda Moola Chooranam** by using Fourier transform infrared spectroscopy.

FTIR SPECTRUM ANALYSIS

Fourier transform infrared spectroscopy it is an important and more advanced technique. It is used to identify the functional group to determine the quality and consistency of the sample material and can determine the amount of compound present in the sample.

In FTIR - infrared is passed from a source through a sample. This infrared is absorbed by the sample according to the chemical properties and some are transmitted. The spectrum that appears denotes the molecular absorption and transmission. It forms the molecular finger print of the sample. It is recorded as wavelength and the peaks seen in the spectrum indicate the amount of material present.

FIGURE :1



INTERPRETATION :

TABLE :1

S.NO	Wave Number	Vibrational Modes of Erandamoola Chooranam in IR	Functional Groups
1	898.83	C-H bending	1,2,4, Trisubstituted
2	1051.20	S=O stretching C=O stretching	Sulfoxide Primary Alcohol
3	1159.22	C=O stretching	Tertiary Alcohol
4	1247.94	C-N stretching C-O stretching	Amine Alkyl Aryll Ether
5	1325.10	S=O stretching C-N stretching	Sulfone Aromatic Amine
6	1375.25	O-H bending O-H bending	Phenol Alcohol
7	1425.40	O-H bending	Corboxylic Acid
8	1510.26	N-O stretching	Nitro Compound
9	1643.35	C=C stretching	Alkene
10	1735.93	C=O stretching	Aldehyde Ester γ Lactone
11	2839.22	N-H stretching O-H stretching	Amine Salt Carboxylic Acid Alcohol
12	2885.51	C-N stretching N-H stretching O-H stretching	Alkane Amine Salt Alcohol
13	2943.37	C-H stretching	Alkane Alkyne

DISCUSSION AND RESULTS

In FTIR spectre analysis, this sample analysis **Eranda Moola Chooranam** exhibit the peak value at 898.83, 1051.20, 1159.22, 1247.94, 1325.10,1375.25, 1425.40, 1510.26, 1643.35 , 1735.93 , 2839.22, 2885.51, 2943.37, having C-H stretching, O-H stretching, C=N stretching, C=O stretching, C-O stretching, C-N stretching, S=O stretching, C=C stretching, C-Br stretching, N- H stretching.

This indicates the presence of some organic functional groups such as alcohol, alkanes, , tertiary alcohol, primary alcohol, sulfoxide, aromatic amine, alkyl aryl ether, ether, lactone carboxylic acid, phenol, nitro compound,amine,1,2,4, trisubstituted, aldehyde, amine salt.

ANNEXURE-IV

ANTI-INFLAMMATORY ACTIVITY OF ERANDA MOOLA CHOORANAM

The anti-inflammatory activities of **Eranda moola Chooranam** at 200 and 400 mg/kg doses were evaluated using carrageenan-induced paw oedema method. The inflammation was readily produced in the form of edema with the help of irritant such as carrageenan. Carrageenan is a sulphated polysaccharide obtained from sea weed (Rhodophyceae) and when injected cause the release of prostaglandins by the way it produces inflammation and edema.

REQUIREMENTS:

Animal	:	Albino rat (180-200 g)
Drugs and chemicals	:	Carrageenan (1%w/v), Diclofenac sodium (standard), Carboxy methyl cellulose (1%w/v), Plethysmo meter.
Test compounds	:	Eranda moola Chooranam.

METHOD:

Anti-inflammatory activity was performed by the following procedure of Bhandri et al(1) The animals were divided into 4 groups each having six animals. A freshly prepared suspension of carrageenan (1% w/v , 0.1 ml) was injected to the planter region of left hind paw of each rat. One group was kept as control and the animals of the other groups were pretreated with the **Eranda moola Chooranam** 200&400mg/kg test Compounds dissolved with 2 ml sterile water given through orally and diclofenac sodium 10mg/kg ip 30 min before the carrageenan treatment. The paw volumes of the test compounds, standard and control groups were measured at 60,240,360 minutes of carrageenan treatment with the help of plethysmometer . Mean increase in paw volume was measured and the percentage of inhibition was calculated.

$$\% \text{ Anti-inflammatory activity} = (Vc - Vt / Vc) \times 100$$

Where, ***Vt***-mean increase in paw volume in rats treated with test compounds, ***Vc***-mean increase in paw volume in control group of rats.

* Data are expressed as Mean ± S.E.M.

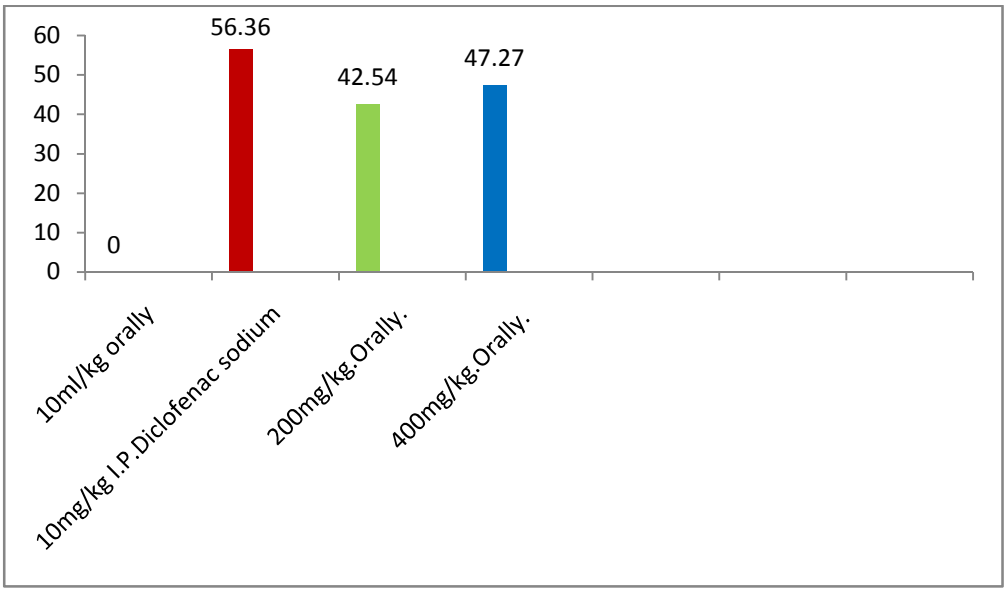
*Data were analyzed by one way ANOVA followed by Newman's keul's multiple range tests, to determine the significance of the difference between the control group and rats treated with the test compounds.

*a Values were significantly different from normal control at P< 0.01

TABLE No.1

ANTI-INFLAMMATORY ACTIVITY OF ERANDA MOOLA CHOORANAM

	Dose (mg/kg)	**Paw volume(ml) as measured by mercury displacement at 6 hour**	**Percentage inhibition of paw edema**
Group I Normal saline	10ml/kg orally	5.50±0.96	-
Group II Std	10mg/kg I.P.Diclofenac sodium	2.40±0.40	56.36%
Group III EC	200mg/kg.Orally.	3.16±0.48	42.54%
Group IV EC	400mg/kg.Orally.	2.90±0.52	47.27%



RESULTS

Anti- inflammatory activity

EC at 100 and 200 mg/kg doeses were tested for their Anti- inflammatory activity by using carrageenan Induced rat paw edema method and the results are tabulated in table The results reveals that both extracts of EC at 200 and 400 mg/kg doses possesses significant Anti- inflammatory activity when compared to control group at $p<0.01$.

STUDY OF ANALGESIC ACTIVITY IN RATS USING THE DRUG ERANDA MOOLA CHOORANAM BY HIND – HOT PLATE METHOD

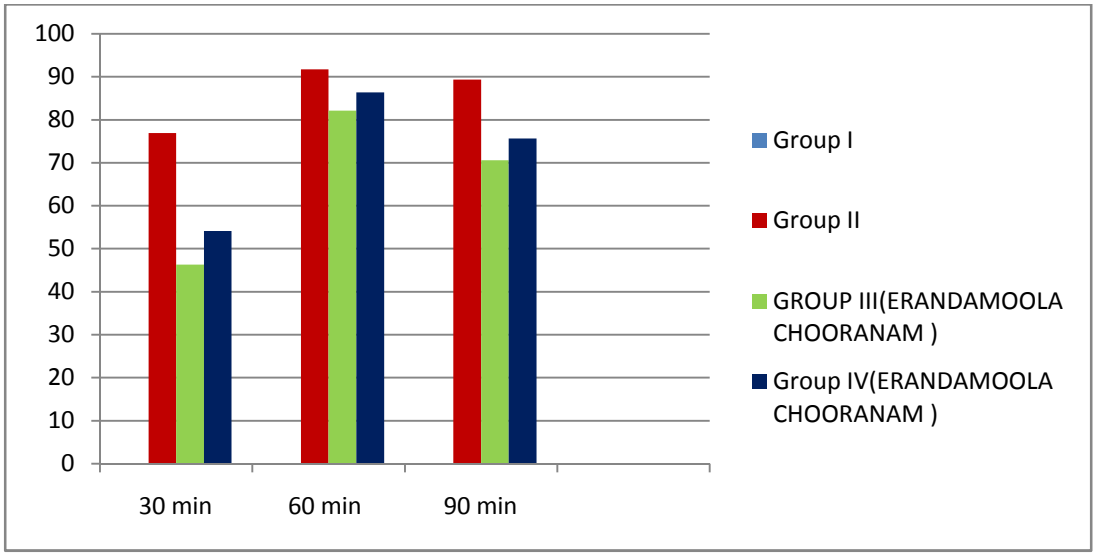
Hot plate method

Animals

Young wister albino rats of either sex aged 4-5 weeks, average weight 100-150 gm were used for the experiment. The rat were purchased from the animal TANVASU . They were kept in standard environmental condition (at 24.0±0°C temperature & 55-65% relative humidity and 12 hour light/12 hour dark cycle) for one week for acclimation after their purchase and fed ICDDRB formulated rodent food and water ad libitum. The set of rules followed for animal experiment were approved by the institutional animal ethical committee (Zimmermann, 1983).

Experimental animals of either sex were randomly selected and divided into four groups designated as group-I, group-II, group-III and group-IV consisting of five Rats in each group for control, positive control and test sample group respectively. Each group received a particular treatment i.e. control (1% Tween-80 solution in water, 10ml/kg, p.o.), positive control (Diclofenac sodium 10 mg/kg, p.o.) and the test sample (drug of 100 mg/kg, p.o. & 200 mg/kg, p.o. respectively). The animals were positioned on Eddy's hot plate kept at a temperature of 55±0.5 0C. A cut off period of 15 s (Franzotti *et al.*, 2000) was observed to avoid damage to the paw. Reaction time was recorded when animals licked their fore or hind paws, or jumped prior to and 0, 30, 60 and 90 min after oral administration of the samples (Eddy *et al.*, 1953; Kulkarni, 1999; Toma *et al.*, 2003).

GROUP	**DOSE**	**Mean latency before and after drug administration**				**% inhibition**		
		0 min	**30 min**	**60 min**	**90 min**	**30min**	**60min**	**90min**
Group I	Vehicle	0.76±0.220	0.95±0.226	0.66±0.198	1.08±0.267	-	-	-
Group II Diclofenac	10	0.84±0.088	4.12±0.625	7.97±0.645	10.17±1.008	76.94	91.71	89.38
GROUP III(EC)	200	0.71±0.074	1.77±0.265	3.69±0.776	3.67±0.617	46.32	82.11	70.57
Group IV	400	0.57±0.018	2.07±0.852	4.84±0.514	4.43±0.465	54.10	86.36	75.62



Statistical analysis

The results of statistical analysis for animal experiment were expressed as mean ± SEM and were evaluated by ANOVA followed by Dunnet's multiple comparisons. The results obtained were compared with the vehicle control group. The $p<0.05$, 0.001 were considered to be statistically significant

Result

Results of hotplate test are presented in Table for drugs respectively. The drug were found to exhibit a dose dependent increase in latency time when compared with control. At 90 minutes, the percent inhibition of two different doses (100 and 200 mg/kg body weight) was 70.57% & 75.62% respectively. The results were found to be statistically significant ($p<0.001$)

Discussion

Sidhha is the first system of medicine to emphasize health as the perfect state of physical, psychological, social and spiritual components of a human being. The fundamental principle of this medicine successfully eliminates the evil side effects without losing the beneficial medicinal properties. Diclofenac was used as a reference drug in the current study as it has both central, peripheral actions and can significantly treat nociceptive pain as in this model. In the current study, pain threshold increased significantly during the period of observation in all the drug treated groups, with maximum effect observed in the **Eranda moola Choranam** at a dose of 200mg/kg as shown in table 1. The analgesic activity of *drug* was comparable to diclofenac at 30 ,60,120minutes appears to be a significant finding and suggests that this drug has a slow onset of analgesic action

ANNEXURE -V

TOXICITY STUDIES

EVALUATION OF ACUTE TOXICITY STUDY OF ERANDA MOOLA CHOORANAM

Effect of Acute Toxicity Study (14 Days) of *ERANDAMOOLA CHOORANAM*

Table No –1 PHYSICAL AND BEHAVIORAL EXAMINATIONS.

Group no.	Dose(mg/kg)	Observation sign	No. of animal affected.
Group-I	5mg/kg	Normal	0 of 3
Group- II	50mg/kg	Normal	0 of 3
Group-III	300mg/kg	Normal	0 of 3
Group-IV	1000mg/kg	Normal	0 of 3
Group-V	2000mg/kg	Normal	0 of 3

Table No-2 HOME CAGE ACTIVITY

Functional and Behavioural observation	Observation	5mg/kg Group (G-I)	50mg/kg (G-II)	300mg/kg (G-III)	1000mg/kg (G-IV)	2000mg/kg (G-V)
		Female n=3	Female n=3	Female n=3	Female n=3	Female n=3
Body position	Normal	3	3	3	3	3
Respiration	Normal	3	3	3	3	3
Clonic involuntary Movement	Normal	3	3	3	3	3
Tonic involuntary Movement	Normal	3	3	3	3	3
Palpebral closure	Normal	3	3	3	3	3
Approach response	Normal	3	3	3	3	3
Touch response	Normal	3	3	3	3	3
Pinna reflex	Normal	3	3	3	3	3
Tail pinch response	Normal	3	3	3	3	3

Table No-3

HAND HELD OBSERVATION

Functional and Behavioral observation	Observation	Control	5 mg/kg (G-I)	50 mg/kg (G-II)	300mg/kg (G-III)	1000mg/kg (G-IV)	2000mg/kg (G-V)
		Female n=3	Female n=3	Female n=3	Female n=3	Female n=3	Female n=3
Reactivity	Normal	3	3	3	3	3	3
Handling	Normal	3	3	3	3	3	3
Palpebral closure	Normal	3	3	3	3	3	3
Lacrimation	Normal	3	3	3	3	3	3
Salivation	Normal	3	3	3	3	3	3
Piloerection	Normal	3	3	3	3	3	3
Pupillary reflex	Normal	3	3	3	3	3	3
Abdominal tone	Normal	3	3	3	3	3	3
Limb tone	Normal	3	3	3	3	3	3

TABLE NO-4

MORTALITY

Group no	Dose no(mg/kg)	Mortality
Group-I	5(mg/kg)	0 of 3
Group-II	50(mg/kg)	0 of 3
Group-III	300(mg/kg)	0 of 3
Group-IV	1000(mg/kg)	0 of 3
Group-V	2000(mg/kg)	0 of 3

RESULT:

From acute toxicity study it was observed that the administration of *ERANDAMOOLA CHOORANAM* at a dose of 2000 mg/kg to the rats do not produce drug-related toxicity and mortality. So No-Observed-Adverse-Effect- Level (NOAEL) of ***ERANDAMOOLA CHOORANAM*** is 2000 mg/kg.

DISCUSSION

ERANDAMOOLA CHOORANAM was administered single time at the dose of 5mg/kg, 50mg/kg , 300mg/kg, 1000mg/kg and 2000mg/kg to rats and observed for consecutive 14 days after administration. Doses were selected based on the pilot study and literature review. All animals were observed daily once for any abnormal clinical signs. Weekly body weight and food consumption were recorded. No mortality was observed during the entire period of the study. Data obtained in this study indicated no significance physical and behavioural signs of any toxicity due to administration of ***ERANDAMOOLA CHOORANAM*** at the doses of 5mg/kg, 50mg/kg , 300mg/kg, 1000mg/kg and 2000mg/kg to rats.

At the 14th day, all animals were observed for functional and behavioral examination. In functional and behavioral examination, home cage activity, hand held activity were observed. Home cage activities like Body position, Respiration, Clonic involuntary movement, Tonic involuntary movement, Palpebral closure, Approach response, Touch response, Pinna reflex, Sound responses, Tail pinch response were observed. Handheld activities like Reactivity, Handling, Palpebral closure, Lacrimation, Salivation, Piloercetion, Papillary reflex, abdominaltone, Limb tone were observed. Functional and behavioral examination was normal in all treated groups.Food consumption of all treated animals was found normal as compared to normalgroup.

Body weight at weekly interval was measured to find out the effect of ***ERANDAMOOLA CHOORANAM*** on the growth rate. Body weight change in drug treated animals was found normal.

ANNEXURE –VI

SUB-ACUTE TOXICITY STUDY IN WISTAR RATS TO EVALUATE TOXICITY PROFILE OF *ERANDAMOOLA CHOORANAM*

Table No :1

EFFECT OF SUB- ACUTE DOSE (28 DAYS)OF *ERANDAMOOLA CHOORANAM ON* BODY WEIGHT IN GRAM

GROUP	CONTROL	LOW	MID	HIGH
1st day	131.3±1.03	132±1.543	133.3±4.231	134.3±4.23
7th day	141.1±1.03	142.3±2.343	143±4.113	148±2.11
14th day	141.1±1.004	142.3±3.12	143.4±4.012	144.4±4.012
21st day	143.3±2.120	141.4±3.501	142±3.131	143±3.13
28th day	143.3±1.041	144.3±3.202	145±4.0405	146±4.040

Values are expressed as mean ± SEM Statisticalsignificance (p) calculated by one way ANOVA followed by Dennett's(n=6); $^{ns}p>0.05$, *p<0.05, **p<0.01, ***p<0.001, calculated by comparing treated groupswith control group.

EFFECT OF SUBACUTE DOSE (28 DAYS)OF *ERANDAMOOLA CHOORANAM*

Table No: 2

GROUP		CONTROL	LOW	MID	HIGH
HEART		0.45±0.06	0.36±0.04	0.33±0.11	0.43±0.02
LIVER		2.35± 0.27	2.35±0.23	2.22±0.01	2.25± 0.23
LUNGS		1.33±0.14	1.33±0.14	1.02±0.24	1.45±0.10
KIDNEY	L	1.45±0.06	1.54±0.03	1.45±0.02	1.43±0.02
	R	1.43±0.028	1.16±0.02	1.43±0.024	0.44±0.024

Values are expressed as mean ± SEM Statisticalsignificance (p) calculated by one way ANOVA followed by Dennett's(n=6); $^{ns}p>0.05$, *p<0.05, **p<0.01, ***p<0.001, calculated by comparing treated groupswith control group.

Table No- 3

EFFECT OF SUB- ACUTE DOSE (28 DAYS) OF *ERANDAMOOLA CHOORANAM ON* HAEMATOLOGICAL PARAMETERS

Drug treatment	RBC million cells/cmm	WBC cells/cmm	Haemoglobingm %	Differential count %			
				Neutophils	Eosinophils	Monocyte	Lymphocyte
Control	5.20±.40	4251.40±23.32	11.39±0.45	30.26±1.20	0.53±0.11	4.44±0.15	32.12±3.32
LOW	5.46±0.20	4333.03±23.22	11.19±0.43	34.53±1.41	0.09±0.14	4.11±0.30	32.21±3.51
MID	5.32±0.21	4303.24±32.35	11.10±1.03	28.31±2.22	0.43±0.12	4.31±.40	28.12±3.32
HIGH	5.25±0.21	4870.24±32.35	12.10±1.03	34.31±2.22	0.49±0.12	4.33±0.40	24.12±3.32

Values are expressed as mean ± SEM Statisticalsignificance (p) calculated by one way ANOVA followed by Dennett's(n=6); $^{ns}p>0.05$, *p<0.05, **p<0.01, ***p<0.001, calculated by comparing treated groupswith control group.

Table :4

EFFECT OF SUB- ACUTE DOSE(28 DAYS)OF *ERANDAMOOLA CHOORANAM* ON BIOCHEMICAL PARAMETERS

Drug Treatment	SGPT (IU/L)	SGOT(IU/L)	ALP(IU/L)	Urea (mg/dl)	Creatinine(mg/dl)
Control	**41.13±3.02**	**14.23±4.31**	**42.11±11.32**	**24.34±3.00**	**0.53±0.03**
LOW	**41.12±3.22**	**10.22±4.01**	**25.10±12.42**	**19.52±2.42**	**0.69±0.04**
MID	**39.20±4.44**	**13.30±2.21**	**24.44±4.14**	**18.11±2.22**	**0.64±0.04**
HIGH	**41.20±4.44**	**13.90±2.21**	**23.44±4.14**	**19.11±2.22**	**0.65±0.04**

Table No- 5

EFFECT OF SUB- ACUTE DOSE (28 DAYS) OF *ERANDAMOOLA CHOORANAM* BIOCHEMICAL PARAMETERS

GROUP	CONTROL	ERANDAMOOLA CHOORANAM(200mg/kg)	ERANDAMOOLA CHOORANAM(400mg/kg)	ERANDAMOOLA CHOORANAM (600mg/kg)
TOTAL BILIRUBIN (mg/dl)	0.508±0.27	0.8±0.27	0.8±0.76	0.84±0.199

Values are expressed as mean ± SEM Statisticalsignificance (p) calculated by one-way ANOVA followed by Dennett's(n=6); $^{ns}p>0.05$, *p<0.05, **p<0.01, ***p<0.001, calculated by comparing treated groupswith control group.

Table No:6

EFFECT OF SUB- ACUTE DOSE (28 DAYS) OF *ERANDAMOOLA CHOORANAM* ON FOOD INTAKE IN GRAM

GROUP	CONTROL	Low	mid	high
1st DAY	17.32±13.5110	18.1671±14.3	11.09±21.71	16.4±7.62
7th DAY	14.4±11.65	9.862±12.67	15.72±9.853	10.16±14.41
14th DAY	17.82±8.72	9.82±14.28	9±13.96	18.71±8.981
21st DAY	10.86±12.4	14±8.466	14.87±9.43	18.16±8.02
28th DAY	11.09±11.38	17.37±11.50	9±8.90	9±7.57

Values are expressed as mean ± SEM Statisticalsignificance (p) calculated by one-way ANOVA followed by Dennett's(n=6); $^{ns}p>0.05$, *p<0.05, **p<0.01, ***p<0.001, calculated by comparing treated groupswith control group

Table No :7.

EFFECT OF SUB- ACUTE DOSE (28 Days) Of *ERANDAMOOLA CHOORANAM* ON WATER INTAKE IN ML

GROUP	CONTROL	EC (200mg/kg)	EC (400mg/kg)	EC(600mg/kg)
1st DAY	98.38±13.10	89.12±14.26	102.10±21.79	67.5±7.03
7th DAY	85.5±11.78	100.83±12.70	76.63±9.863	81.67±14.50
14th DAY	58.33±8.77	90.83±14.2	80±13.92	89.1672±8.881
21st DAY	91.87±12.49	85±8.466	65.38±9.450	89.17±8.02
28th DAY	82.10±11.30	88.48±11.5	80±8.91	70±7.53

Values are expressed as mean ± SEM Statisticalsignificance (p) calculated by one-way ANOVA followed by Dennett's(n=6); $^{ns}p>0.05$, *p<0.05, **p<0.01, ***p<0.001, calculated by comparing treated groupswith control group

Table No: 8

EFFECT OF SUB ACUTE DOSES (28 DAY) OF *ERANDAMOOLA CHOORANAM* ON ELECTROLYTES: -

GROUP	CONTROL	ERANDAMOOLA CHOORANAM (200mg/kg)	ERANDAMOOLA CHOORANAM (400mg/kg)	ERANDAMOOLA CHOORANAM (600mg/kg)
Sodium (mg/dl)	144.10±0.6855	144.30±0.92	141±0.7571	151.80±0.70
Calcium(mg/dl)	7.80±0.189	7.20±0.83***	6.7±0.19***	6.180±0.1*
Phosphorus (U/L)	5.8±0.17	6.3±0.915^{ns}	4.350±0.51^{ns}	5.037±0.2*

Values are expressed as mean ± SEM Statisticalsignificance (p) calculated by one-way ANOVA followed by Dennett's(n=6); NS- non-significant, *p<0.05, **p<0.01, ***p<0.001,

6.0 RESULTS:

CLINICAL SIGNS:

All animals in this study were free of toxic clinical signs throughout the dosing period of 28 days.

Mortality:

All animals in control and in all the treated dose groups survived throughout the dosing period of 28 days.

Body weight:

Results of body weight determination of animals from control and different dose groups exhibited comparable body weight gain throughout the dosing period of 28 days.

Food consumption:

During dosing and the post-dosing recovery period, the quantity of food consumed by animals from different dose groups was found to be comparable with that by control animals.

Organ Weight:

Group Mean Relative Organ Weights (% of body weight) are recorded in Table Comparison of organ weights of treated animals with respective control animals on day 29 was found to be comparable similarly.

Hematological investigations:

The results of hematological investigations conducted on day 29 revealed following significant changes in the values of different parameters investigated when compared with those of respective controls; however, the increase or decrease in the values obtained was within normal biological and laboratory limits or the effect was not dose dependent.

Biochemical Investigations:

Results of Biochemical investigations conducted on the day 29th and recorded in Table revealed the following significant changes in the values of hepatic serum enzymes studied. When compared with those of respective control. However, the increase or decrease in the values obtained was within normal biological and laboratory limits.

INTERPRETATION:

1) All the animals from control and all the treated dose groups up to 15ml/kg survived throughout the dosing period of 28 days.

2) No signs of toxicity were observed in animals from different dose groups during the dosing period of 28 days.

3) Animals from all the treated dose groups exhibited comparable body weight gain with that of controls throughout the dosing period of 28 days.

4) Food consumption of control and treated animals was found to be comparable throughout the dosing period of 28 days

5) Haematological analysis conducted at the end of the dosing period on day 29th, revealed no abnormalities attributable to the treatment.

6) Biochemical analysis conducted at the end of the dosing period on day 29^{th}, no abnormalities attributable to the treatment.

7) Organ weight data of animals sacrificed at the end of the dosing period was found to be comparable with that of respective controls.

ANNEXURE –VII

ASSESSMENT FORMS

FORM I	**:**	Screening form
FORM II	:	Consent form
FORM III	:	History Proforma
FORM IV	:	Clinical Assessment
FORM V	:	Laboratory investigation
FORM VI	:	Drug Compliance Form
FORM VII	:	Adverse Reaction form
FORM VIII	:	Patient withdrawal form

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FORM-I

(SCREENING AND SELECTION PROFORMA)

1.OPD/IPD No: _____ 2.Date: _____3.SI.No: _____4.Name: _____

5. Age: _____ 6.Gender: _____ 7. Phone No:. _____

INCLUSION CRITERIA:

- Age 30-60Yrs
- Sex : Both male and female
- Patients having symptoms of joint pain of both knee joints, swelling, tenderness, stiffness, crepitation, restricted movements of both knee joints.
- Patients who are willing to give blood samples for laboratory investigation .
- Patients who are willing to take X-ray before and after treatment.
- Patients who are willing to participate in this study with the knowledge of potential risks.

EXCLUSION CRITERIA:

- Cardiac disease
- Hypertension
- Rheumatoid arthritis
- Use of narcotic drugs
- Pregnancy women and lactating mother
- History of trauma
- Patient with any other serious illness.
- Clinically significant abnormal laboratory values.

WITHDRAWAL CRITERIA:

- Intolerance to the drug and development of adverse reactions during drug trial
- Poor patient's compliance and defaulters.
- Patient turned unwilling to continue in the course of clinical trial.
- Occurrence of any serious illness.

DATE :

STATION : Signature of the Investigator

Signature of the Guide/HOD

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FORM-II

CONSENT FORM

Certificate by Investigator

I certify that I have disclosed all details about the study in the terms readily understood by the patient.

Date: …….. Signature of the

Signature of the Investigator: …….. Guide/HOD: …….

Name: …….. Name: ……

Consent by Patient

I have been informed to my satisfaction, by the attending physician, the purpose of the clinical trial, and the nature of drug treatment and follow-up including the laboratory investigations to be performed to monitor and safeguard my body functions.

I am aware of my right to withdraw from the trial at any time during the course of the trial without having to give the reasons for doing so.

I, exercising my free power of choice, hereby give my consent to be included as a clinical trial of **ERANDA MOOLA CHOORANAM** [INTERNAL],**KUNGILIA THYLAM** [EXTERNAL]AND **PATTRU** [EXTERNAL THERAPY] IN **AZHAL KEEL VAYU**[OSTEOARTHRITIS].

Date: …….. Signature: ……

Name: …….

Date: …….. Signature of Witness: …….

Name…….. ……Relationship: ……..

அரசினர் சித்தமருத்துவக் கல்லூரி மற்றும் மருத்துவமனை
பாளையங்கோட்டை
பட்ட மேற்படிப்பு சிறப்பு மருத்துவத்துறை

‘ஏரண்ட மூல சூரணம்’’ மற்றும் ‘குங்கிலிய தைலம் - பற்று’’ இவற்றின் பரிகரிப்புத் திறனைக் கண்டறியும் மருத்துவ ஆய்வு ஒப்புதல் படிவம் ஆய்வாளரால் சான்றளிக்கப்பட்டது.

நான் இந்த ஆய்வைக் குறித்த அனைத்து விபரங்களையும் நோயாளிக்கு புரியும் வகையில் எடுத்துரைத்தேன் என உறுதியளிக்கிறேன்.

தேதி :
இடம் :
ஆய்வாளர்கையொப்பம்:
பெயர்:

துறைத்தலைவர்
கையொப்பம்:
பெயர்:

நோயாளியின் ஒப்புதல்

என்னிடம் இந்த மருத்துவ ஆய்வின் காரணத்தையும் மருந்தின் தன்மை மற்றும் மருத்துவ வழிமுறையைப் பற்றியும் தொடர்ந்து எனது உடல் இயக்கத்தை கண்காணிக்கவும், அதனைப் பாதுகாக்கவும் பயன்படும் மருத்துவ ஆய்வுக்கூட பரிசோதனைகள் பற்றியும் திருப்தி அளிக்கும் வகையில் ஆய்வுமருத்துவரால் விளக்கிக் கூறப்பட்டது.

நான் இந்த மருத்துவ ஆய்வின்போது காரணம் எதுவும் கூறாமல் எப்பொழுது வேண்டுமானாலும் இந்த ஆய்விலிருந்து என்னை விடுவித்துக் கொள்ளும் உரிமையை தெரிந்திருக்கின்றேன்.

நான் என்னுடைய சுதந்திரமாகத் தேர்வுசெய்யும் உரிமையைக் கொண்டு அழல் கீல் வாயு என்னும் நோய்க்கான ஏரண்ட மூல சூரணம்’’ மற்றும் ‘குங்கிலிய தைலம் - பற்று ஆகியவற்றின் பரிகரிப்புத் திறனைக் கண்டறியும் மருத்துவ ஆய்விற்கு என்னை உட்படுத்திக்கொள்ள ஒப்புதல் அளிக்கிறேன்.

தேதி :
இடம் :

கையொப்பம்:
பெயர் :
சாட்சிக்காரர்கையொப்பம்:
பெயர்:

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FORM III

HISTORY PROFORMA ON ENROLLMENT

1. Serial No of the case: _____ 2. OPD/IPD No:_____

3.Name: _____ 4. Gender: ☐

5. Age (years): _____ DOB ☐☐ ☐☐ ☐☐☐☐

Date Month Year

6.Address: ----------

7.A. Occupation: ---------- B. Income ----------

8. Educational Status: A) Illiterate ☐ B)Literate ☐

9. Height: ----------cms 10.Weight:----------kg

11. Complaints and Duration:

12. Past History

Hypertension _____

Diabetes mellitus _____

Asthma _____

PT _____

Other _____

13. HABITS

A) Smoking : 1. Yes ☐ duration _____ years; Number- _____ 2.No ☐

B) Alcoholism:1. Yes ☐ duration _____ years; Quantity- ____ ml 2.No ☐

C) Tobacco chewing: 1. Yes ☐ duration _____ years 2.No ☐

D) Betel chewing : 1. Yes ☐ duration _____ years 2.No ☐

14. Dietary style: A.Pure vegetarian ☐ B.Non-vegetarian ☐ C. Mixed diet ☐

15. Drug history:Had the patient been treated before with allopathy drug?

A) Yes ☐ 2) No ☐

16 Marital status**:**1.Married ☐ 2.Unmarried ☐

17. Family history :

Whether this problem runs in family? 1. Yes ☐ 2.No ☐

(If yes, mention the relationship)

18. Bowel habits & micturition: Normal ☐ Abnormal ☐

(Details of an abnormality)

19. Psychological state: Normal ☐ Anxiety ☐ Depression ☐

Signature of the Investigator **Signature of the Guide/ HOD**

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FORM IV

CLINICAL ASSESSMENT ON ENROLLMENT AND ON VISITS

1. S.No: _____2. OPD/IPD No: _____

3. Name**:** _____4. Gender : _____

5. Date of assessment : _____

SIDDHA SYSTEM OF EXAMINATION

1.NILAM: [LAND WHERE PATIENT LIVED MOST]

Kurinji ☐ (Hilly terrain) Mullai ☐ (Forest range) Marutham ☐ (Plains) Neithal ☐ (Coastal belt) Palai ☐ (Arid regions)

2. KAALAM:

Kaarkalam	-	☐	Pinpanikalam-		☐
Koothirkalam	-	☐	Ilavenil	-	☐
Munpanikalam	-	☐	Muthuvenil	-	☐

3.THEGI:

4. GUNAM:

Sathuvam - ☐ Rasatham - ☐ Thamasam - ☐

5.IMPORIGAL (SENSORY ORGANS) :

Mei (Skin) :

Vai (Buccal Cavity):

Kan(Eyes) :

Mooku(Nose):

Sevi(Ears) :

6.KANMENDRIYAM (MOTOR ORGANS) :

Kai (Upper limb):

Kaal(Lower limb):

Vai(Buccal Cavity):

Eruvai(Excretory organs):

Karuvai(Reproductive organs):

7.UYIR THATHUKKAL:

A)VATHAM:

Pranan:

Abanan:

Viyanan:

Udhanan:

Samanan:

Nagan:

Koorman:

Kirukaran:

Devathathan:

Dhananjeyan:

B)PITHAM:

Analpitham:

Ranjagam:

Sathagam:

Prasagam:

Aalosagam:

C)KABAM:

Avalambagam:

Kilaethagam:

Pothagam:

Tharpagam:

Santhigam:

8.UDAL THATHUKKAL:

Saaram[Chyme]:

Senneer[Blood]:

Oon[Muscle]:

Kozhuppu[Fat]:

Enbu[Bone]:

Moolai[Bone Marrow]:

Sukkilam/Suronitham

[Genital Discharges] :

9.ENVAGAI THERVUGAL:

Naadi:

Sparisam:

Naa:

Niram:

Mozhi:

Vizhi:

Malam:

Moothiram:

10.NEER KURI:

Niram:

Manam:

Nurai:

Edai:

Enjal:

11.NEI KURI:

GENERAL EXAMINATION:

Conscious level:

Body weight:

Height:

BMI:

Built:

Nourishment:

Temperature:

Blood Pressure:

Pulse rate:

Heart rate:

Respiratory rate:

Anaemia:

Jaundice:

Clubbing:

Cyanosis:

Pedal oedema:

Significant Lymphadenopathy:

SYSTEMIC EXAMINATIONS:

Central Nervous System:

Cardio Vascular System:

Respiratory System:

Gastro Intestinal System:

Genito Urinary System:

EXAMINATION OF JOINTS:

Joints Involvement :

Morning Stiffness :

Pain type : Recurrent attack / Episodic / Flitting or Migratory

Inspection:

Spinal deformities: Kyphosis/ Scoliosis/ Lordosis / None

Swelling:

Deformity:

Palpation:

Tenderness:

Heat:

Fluid accumulation:

Crepitus:

Movements:

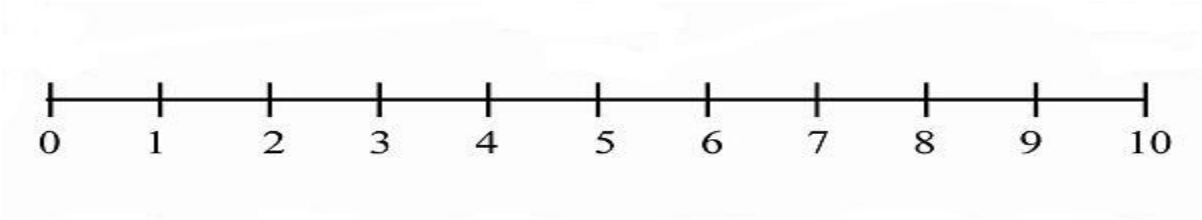
Specific examinations:

CLINICAL ASSESSMENT:

S.NO	SIGNS & SYMPTOMS	BEFORE TREATMENT	AFTER TREATMENT
1.	PAIN		
2.	SWELLING		
3.	REDNESS		
4.	HEAT		
5.	RESTRICTED MOVEMENTS		
6.	CRIPITUS		

PAIN ASSESSMENT:

UNIVERSAL PAIN ASSESSMENT SCALE



A. 0 : No Pain

B. 1 -3 : Mild pain

C. 4-6 : Moderate pain

D. 7-10 : Severe pain

Reference: Clinical Manual for Nursing Practice. (National Institute of Health Warren Grant Magnuson Clinical Center)

GRADATION:

Grade 1: Fit for all activities to do their work without support (Normal)

Grade 2: Mild Pain and Mild restriction of Movements

Grade 3: Moderate Pain and Moderate restriction of Movements

Grade 4: Severe Pain and Severe restriction of Movement

S.NO	ASSESSMENT	BEFORE TREATMENT	AFTER TREATMENT
1	Pain Assessment		
2	Gradation		

OVERALL ASSESSMENT CRITERIA OF THE STUDY

Signature of the Investigator **Signature of the Guide/HOD**

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FORM V

LABORATORY INVESTIGATION FORM

SI.No:

OPD/IPD No:

Name:

Age/Sex:

I.BLOOD

		Before Treatment	After Treatment
1	TC (cells/mm)		
2	DC (%)		
	a)Neutrophils		
	b)Lymphocytes		
	c)Monocytes		
	d)Eosinophils		
3	ESR(mm)		
	a)1/2 hour		
	b)1 hour		
4	Haemoglobin		
5	Blood glucose		
6	Blood urea/ creatinine		
7	Serum cholesterol		

II.URINE

		Before Treatment	After Treatment
1	Albumin		
2	Sugar		
3	Epithelial cells		
4	Pus cells		
5	Red blood cells		

Date :

Station :

Signature of the Investigator **Signature of the Guide/HOD**

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FORM VI

(DRUG COMPLIANCE FORM)

OPD/ IPD No : _____ DOA : _____

Name : _____ Age/Sex : _____ S.No : _____

Name Of The Drug : **ERANDA MOOLA CHOORANAM**

DATE:

Signature of the investigator: **Signature of the guide/hod:**

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FORM VII

ADVERSE DRUG REACTION FORM

Name: _____ OPD/ IPD No : _____

Age: _____ Gender: _____

Date of trial commencement: _____

Date of withdrawal from trial: _____

Description of adverse reaction: _____

_____

Date:

Station:

SIGNATURE OF THE INVESTIGATOR

SIGNATURE OF THE GUIDE/ HOD

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FORM VIII

WITHDRAWAL FORM

Name: _____ OPD/ IPD Number: _____

Age : _____ Gender : _____

Date of trial commencement: _____

Date of withdrawal from trial: _____

Reasons for withdrawal:	YES	NO
• Long absence in without reporting :	☐	☐
• Irregular treatment :	☐	☐
• Shift of locality :	☐	☐
• Increase in severity of symptoms \:	☐	☐
• Development of severe adverse drug reactions :	☐	☐

Date :

Station :

Signature ofthe investigator **Signature of the guide/hod**

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- **Thiruvalluvar**Thirukkural
- Siddha maruthuvangacurukkam
- **Therayar**Neerkuri and Neikuri
- Athmaratchamirtham
- Anubava Vaithiya Deva Ragaisyam
- Gunapadam thathu Jeevam
- India maruthuva mooligaikal part –II
- Mooligai kalngiyam